

FOREST RESOURCES COMMISSION

Background Papers - Volume 3

Management Performance on Forest Tenure, Summary of Findings

*Review of Forest Tenures in British Columbia
- Sterling Wood Group Inc.*

A History of Forest Tenure Policy in British Columbia 1858 - 1978



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The views expressed in independent reports prepared for the Forest Resources Commission are those of the authors and not necessarily those of the Commission. They are published in their entirety for the use and interest of the public as background studies to the April 1991 Report of the Commission to the Minister of Forests.



MANAGEMENT PERFORMANCE ON FOREST TENURES STUDY

SUMMARY OF FINDINGS

**FOR DISCUSSION PURPOSES ONLY
NOT FOR DISTRIBUTION**

Presented to the British Columbia Forest Resources Commission

March, 1990

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SUMMARY OF FINDINGS

INTRODUCTION

This study was done to provide the Commission with background information on management performance of various tenures in B.C. with emphasis on Tree Farm Licences (TFL's).

The intent is to give the Commission an insight into the management performance to-date of the tenure systems used. It will also provide information that may be useful in the Commission's view of the future of forest management in the Province.

Very little of the information has been verified. Care must be taken on how this information is used, before it is verified.

This information should be kept confidential until such time as it has been verified. A commitment has been made to keep the information on individual Managed Forest Units confidential. Managed Forest Unit information can only be distributed in a "rolled-up" fashion.

METHODOLOGY

A questionnaire was sent to all TFL licensees in the Province asking for information pertinent to the study. A similar questionnaire was sent out to selected holders of Managed Forest Units (MFU's) and to the Ministry of Forests (MOF) about selected Timber Supply Areas (TSA's). The information was then compiled in a database programme for analysis by individual TFL, TSA or MFU or "rolled-up" as deemed necessary. The analysis and pertinent comments follow in the report.

Telephone and personal interviews were held with various licensee and MOF personnel to verify some of the response information. Many viewpoints were expressed during these interviews, some of which are included in the report.

BACKGROUND INFORMATION ABOUT THE STUDY

TSA's and MFU's are not typically regarded as forest tenures, but were used as such in this study. MFU's are a land tax assessment definition used by the B.C. Assessment Authority. TSA's are administrative units used by the MOF to do yield analysis calculations and allowable cut allocations, they are not used as operational boundaries.

The intent of sending out the questionnaire to these three categories of "tenure" was to allow the Commission the ability to look at and compare the following on an equal basis:

- Privately managed private land - MFU's;
- "Privately" managed public land - TFL's;
- Publicly managed public land - TSA's.

Most of the requests for information were dealt with by the various agencies amicably. A number of the small MFU holders would not participate in the study. Resultantly, the MFU information is biased towards the larger land based MFU's.

Unfortunately, TFL 42 - Tanizul, has not yet responded. As much as possible, information for this TFL has been gathered from MOF records. Fletcher Challenge Canada's submissions have just recently been received. The report could not be completed until this information was received. The quality of the responses varied significantly from licensee to licensee.

The information on TSA's supplied by the MOF could only be taken back to 1982, the date that the TSA's were established. Information prior to this date is available but would be very difficult to compile to current TSA boundaries. Current TSA boundaries do not consistency follow the previous administrative boundaries of their predecessors - Public Sustained Yield Units (PSYU's). No attempt has been made by the MOF to separate history records of the PSYU's to the new boundaries of the TSA's. Because the TSA's tend to be used only as administrative units and not as operational units, some of the information requested was not available on a TSA basis.

It is apparent that there is a significant amount of inconsistency with the data that has been submitted by the industry and the MOF, particularly with certain questions in the questionnaire. Throughout the report were these inconsistencies impact on the trends the data shows, it has been noted.

The format of the report summarizes the responses by each question presented in the questionnaire and gives general comments that are appropriate for the Commission's information and understanding of the responses. The questions asked each TFL holder are repeated prior to the findings of each question. The question asked in the MFU and TSA questionnaires are similar to each of these "TFL questions".

Each individual response has been catalogued and is available for review at the Commission's office.

Individual responses have been summarized in graphical and tabular format where it is appropriate. Copies of these summaries are available for review at the Commission's office.

Included in the information available at the Commission's office is a copy of each TFL's original licence document and current licence document.

QUESTIONNAIRE FINDINGS

QUESTION 1

- a) *What was the date that the original licence was granted and to whom was it granted?*
- b) *Have there been any changes in ownership of the licence since the original licence was granted? If there has been, when and to whom were these changes made?*
- c) *What is the expiry date of the current licence and any granted extensions?*

Findings to Question 1

Table 1 - Current TFL Structure (page IV-2) indicates the year the TFL was granted, what term it was granted under and whom the current licence holder is.

Twelve current TFL holders originally had their licence granted to them in perpetuity. Through legislation, in 1980 their licence agreements were replaced with a 25 year term, renewable on ten year intervals. This legislation is a result of the 1976 Pearce Royal Commission into forestry in B.C. It is not exactly what Pearce recommended, but reflects the intent of his recommendation. Pearce suggested that the government needed a way to withdraw a licence if it needed to. To date, there has not been a renewal granted, pending the results of the Commission.

Nine current TFL holders originally had their licence granted to them on a 21 year term. Through the same legislation, they are also now on the 25 year term, renewable on ten year intervals. (Pearce's comments to the 21 year term was that it appeared to have no special relevance and indeed was not evenly divisible by the required five year management and working plans each TFL is mandated to do in the licence document.)

Since 1980 there have been 11 TFL licences granted; six new licences, the remaining five are amalgamations of previously existing TFL's.

TABLE 1 - CURRENT TFL STRUCTURE

TFL	YEAR GRANTED AND TERM			CURRENT OWNER
	Perpetual	21 Year	25 Year	
1	1948		1986	Skeena Cellulose Inc.
2	1950			Amalgamated into TFL 47 (01-01-85)
3	1950		1983	Slocan Forest Products Ltd.
4	1950			Amalgamated into TFL 45
5	1950		1980	Weldwood of Canada Ltd.
6	1950		1980	Western Forest Products Ltd.
7	1950			Amalgamated with TFL 39
8	1951		1980	Pope and Talbot Ltd.
9	1951			Amalgamated into TFL 49 (01-07-85)
10	1951		1980	Weldwood of Canada Ltd.
11	1952			Amalgamated with TFL 8 (2-03-69)
12	1952			Amalgamated into TFL 47 (01-01-85)
13	1952		1980	Galloway Lumber Company Ltd.
14	1953		1980	Crestbrook Forest Industries Ltd.
15	1954		1980	Weyerhaeuser Canada Ltd.
16	1954			Amalgamated into TFL 49 (01-07-85)
17	1954			Amalgamated into TFL 45 (01-07-83)
18	1954		1982	Slocan Forest Products Ltd.
19	1954		1982	Canadian Pacific Forest Products Ltd.
20	1955			Amalgamated into TFL 44 (01-08-84)
21	1955			Amalgamated into TFL 44 (01-08-84)
22	1955			Amalgamated into TFL 46 (01-07-83)
23	1955		1980	Westar Timber Ltd.
24		1958	1989	Western Forest Products Ltd.
25		1958	1989	Western Forest Products Ltd.
26		1958	1989	District of Mission
27		1958		Amalgamated into TFL 46 (01-07-83)
28		1959		Amalgamated into TFL 30
29		1959		Amalgamated into TFL 30
30		1959	1980	Northwood Pulp and Timber Ltd.
31		1959		Amalgamated into TFL 30
32		1959		Amalgamated into TFL 49 (01-07-85)
33		1959	1980	Federated Cooperatives Ltd.
34		1959		Amalgamated into TFL 30
35		1959	1980	Weyerhaeuser Canada Ltd.
36		1959		Amalgamated into TFL 45 (01-01-83)
37		1960	1981	Canadian Forest Products Ltd.
38		1961	1982	Weldwood of Canada Ltd.
39		1961	1987	MacMillan Bloedel Ltd.
40				Cancelled
41			1980	Eurocan Pulp and Paper
42			1983	Tanizul Timber Ltd.
43			1985	Scott Paper Ltd.
44			1984	MacMillan Bloedel Ltd.
45			1983	British Columbia Forest Products
46			1983	British Columbia Forest Products
47			1985	Crown Forest Industries Ltd.
48			1988	Canadian Forest Products Ltd.
49			1985	Crown Forest Industries Ltd.
50				Disallowed
51			1986	Westar Timber Ltd.
52				Does not exist
53			1989	Dunkley Timber Ltd.
GVWD			n/a*	Greater Vancouver Water District

* 999 year lease

It is apparent from Table 1 (page IV-2) and the individual responses received that there have been numerous changes in ownership of TFL licences, much more than is evident in the responses from the MFU holders. New legislation introduced in to the Forest Act in 1987 (Section 50(4)) should have an effect on these transfers of ownership. This legislation allows the MOF to reduce the annual allowable cut (AAC) of any TFL takeover or merger by 5%.

It is not clear from our data that these changes in ownership have had any significant impact on the management of the licence. This question would require further study if it is of interest to the Commission.

Table 2 - TFL Ownership, Land Base and AAC (page IV-4) gives the current status of TFL ownership, the total productive land base that ownership has and the total AAC of the ownership.

QUESTION 2

- a) *What was the land area (in hectares) of the licence when it was originally granted by Schedule A and Schedule B lands?*
- b) *What is the current land area of the licence by Schedule A and Schedule B lands?*
- c) *What was the original land area (in hectares) by the following classifications?:*

PRODUCTIVE TOTAL

<i>Mature</i>	<i>Accessible</i>
	<i>Inaccessible</i>
<i>Immature</i>	<i>Accessible</i>
	<i>Inaccessible</i>

NSR

NCC

NON-PRODUCTIVE TOTAL

TOTAL LAND AREA

TABLE 2
CURRENT TFL OWNERSHIP, LAND BASE AND AAC

LICENSEE	PRODUCTIVE LAND BASE (ha)	AAC (m ³)	% OF TOTAL AAC
*MacMillan Bloedel	914,000	6,506,300	36
Fletcher Challenge	550,506	2,804,340	15
Western Forest Products	390,806	1,994,550	11
Canadian Forest Products	603,122	1,434,843	8
*Westar Timber	575,650	1,157,303	6
Canadian Pacific Forest Products	113,147	932,132	5
*Skeena Cellulose	234,649	720,000	4
*Weldwood of Canada	157,885	579,966	3
Eurocan Pulp and Paper	271,137	430,000	2
Northwood	158,931	417,344	2
Pope and Talbot	72,057	275,000	2
*Slocan Forest Prod.	120,334	308,000	2
*Crestbrook	53,635	122,500	1
Dunkley Timber	79,620	187,630	1
Tanizul Timber	34,619	132,300	1
Weyerhaeuser Canada	81,855	134,203	1
*District of Mission	6,952	41,200	<1
*Federated Co-op	7,769	27,500	<1
*Galloway Lumber	22,146	27,717	<1
Scott Paper	5,793	49,600	<1
TFL TOTALS	4,454,613	18,282,428	100

* Submission does not appear to have reduced AAC by 5% for the SBFEP

- d) *What is the current land area, based on the latest approved Management and Working Plan, by the following classifications?:*

PRODUCTIVE TOTAL

<i>Mature</i>	<i>Accessible</i>
	<i>Inaccessible</i>
<i>Immature</i>	<i>Accessible</i>
	<i>Inaccessible</i>
<i>NSR</i>	<i>Current</i>
	<i>Beyond current regeneration delay periods</i>
<i>NCC</i>	

NON-PRODUCTIVE TOTAL

TOTAL LAND AREA

- e) *Would you please provide the criteria used in defining what is classified as "productive". Has this definition changed over time? If so, when and what was it changed to or from?*

Findings to Question 2

Tables 3A and 3B - Original and Current Areas and AAC's for TFL's and TSA's (pages IV-6 to IV-9) show the TFL or TSA licence number, the original hectares of productive and non-productive land, the current hectares of productive and non-productive land and the percent change. The information contained in the responses to this question is not always consistent with the information the MOF has, nor did the internal numbers always balance. Unfortunately, some records of the early TFL's that were amalgamated in the 1960s and early 1970s are not readily available. Also, if the reported hectares of TFL's that have amalgamated into a new TFL are added and compared to the reported hectares for the new TFL, discrepancies are noted.

TABLE 3A - ORIGINAL AND CURRENT AREAS AND AAC's FOR TFL's

LICENCE NUMBER	YEAR GRANTED	ORIGINAL AREA (ha) PROD.	ORIGINAL AREA (ha) NON-PROD.	CURRENT AREA (ha) PROD.	CURRENT AREA (ha) NON-PROD.	PROD.	% CHANGE NON-PROD.	TOTAL AREA CHANGE (ha)	ORIGINAL AAC (m3)	CURRENT* AAC (m3)	% CHANGE IN AAC
1	1948	270,501	559,760	234,649	360,562	86.7	64.4	(235,050)	566,340	720,000	127
2	1949	118,768	34,905	194,392	23,722	163.7	68.0	64,441	0	989,630	0
3	1950	44,130	35,219	52,891	25,884	119.9	73.5	(574)	56,634	108,000	191
5	1950	31,709	948	33,243	991	104.8	104.5	1,577	31,817	110,000	346
6	1950	119,874	52,525	143,822	26,203	120.0	49.9	(2,374)	484,213	1,300,000	268
7	1950	46,718	16,331	70,584	7,839	151.1	48.0	15,374	305,800	544,000	178
8	1951			72,057	4,949	0.0	0.0	77,006	35,679	267,750	750
9	1951					0.0	0.0	0	50,971	207,500	408
10	1951	10,406	1,847	61,820	169,297	594.1	9,166.1	218,864	30,667	219,000	714
12	1952	8,245	1,147	8,816	663	106.9	57.8	87	38,220	69,540	182
13	1952	15,330	7,851	22,146	14,966	144.5	190.6	13,931	18,880	27,717	147
14	1953	58,741	37,202	53,635	85,808	91.3	230.7	43,500	67,960	140,000	206
15	1954	36,762	15,375	44,458	3,737	120.9	24.3	(3,942)	15,234	68,406	449
16	1954					0.0	0.0	0	28,317	135,000	477
17	1954	20,958	92,848	46,803	227,676	223.3	245.2	160,673	42,480	187,457	441
18	1954	62,929	8,933	67,443	7,129	107.2	79.8	2,710	70,792	200,000	283
19	1954	77,260	82,979	113,147	81,955	146.4	98.8	34,863	283,168	932,132	329
20	1955	82,700	61,780	160,645	35,139	194.3	56.9	51,304	430,300	1,095,000	254

* Or AAC at the time the licence was cancelled

TABLE 3A (cont'd)

LICENCE NUMBER	YEAR GRANTED	ORIGINAL AREA (ha) PROD.	ORIGINAL AREA (ha) NON-PROD.	CURRENT AREA (ha) PROD.	CURRENT AREA (ha) NON-PROD.	PROD.	% CHANGE NON-PROD.	TOTAL AREA CHANGE (ha)	ORIGINAL AAC (m3)	CURRENT* AAC (m3)	% CHANGE IN AAC
21	1955	186,300	69,430	218,123	40,818	117.1	58.8	3,211	1,007,600	1,845,500	183
22	1955	112,041	46,328	165,449	1,543	147.7	3.3	8,623	455,952	1,110,586	243
23	1955	359,919	665,038	522,748	238,987	145.2	35.9	(263,222)	379,445	920,000	242
24	1958	54,202	58,797	36,496	18,180	67.3	30.9	(58,323)	212,376	115,000	54
25	1958	120,931	340,931	210,488	247,692	174.1	72.7	(3,682)	407,758	653,000	160
26	1958	6,289	1,085	6,952	1,952	110.5	179.9	1,530	12,028	39,598	329
27	1958	12,151	1,912	12,988	1,539	106.9	80.5	464	67,968	118,944	175
30	1967	158,907	22,371	158,931	21,833	100.0	97.6	(514)	396,436	427,800	108
32	1960					0.0	0.0	0	15,574	30,000	193
33	1959	5,864	1,540	7,769	265	132.5	17.2	630	10,902	27,500	252
35	1959	39,350	1,509	37,397	2,054	95.0	136.1	(1,408)	33,131	88,000	266
36	1958	5,424	2,306	10,854	614	200.1	26.6	3,738	24,638	93,446	379
37	1960	93,912	94,095	134,561	54,431	143.3	57.8	985	618,169	1,085,000	176
38	1961	55,410	94,347	62,822	155,209	113.4	164.5	68,274	117,514	249,882	213
39	1961	419,150	284,200	537,952	256,191	128.3	90.1	90,793	1,243,500	3,818,000	307
41	1966	206,198	813,908	271,137	748,591	131.5	92.0	(378)	883,484	430,000	49
43	1985	4,848	4,245	5,793	4,372	119.5	103.0	1,072	27,000	49,600	184
44	1984	376,048	77,049	376,048	77,049	0.0	0.0	0	2,838,000	2,748,000	97
45	1983	60,113	227,297	60,113	227,297	0.0	0.0	0	316,656	254,642	80

* Or AAC at the time the licence was cancelled

TABLE 3A (cont'd)

LICENCE NUMBER	YEAR GRANTED	ORIGINAL AREA (ha) PROD.	ORIGINAL AREA (ha) NON-PROD.	CURRENT AREA (ha) PROD.	CURRENT AREA (ha) NON-PROD.	% CHANGE PROD.	% CHANGE NON-PROD.	TOTAL AREA CHANGE (ha)	ORIGINAL AAC (m3)	CURRENT* AAC (m3)	% CHANGE IN AAC
46	1983	152,235	17,361	152,235	17,361	100.0	100.0	0	1,178,000	1,076,640	91
47	1985	202,464	22,150	203,426	23,806	100.5	107.5	2,618	1,090,000	1,052,950	97
48	1988	468,561	257,974	468,561	257,974	0.0	0.0	0	410,000	410,000	100
49	1985	128,659	19,234	134,732	10,190	104.7	53.0	(2,971)	380,000	361,074	95
51	1984	52,902	24,529	52,902	24,529	100.0	100.0	0	203,600	203,600	100
53	1989	79,620	7,795	79,620	7,795	0.0	0.0	0	189,300	159,300	100
GVWD	1967	24,484	35,878	32,286	25,670	131.9	71.5	(2,406)	93,446	180,000	192

* Or AAC at the time the licence was cancelled

TABLE 3B - ORIGINAL AND CURRENT AREAS AND AAC's FOR TSA's

TSA NUMBER	YEAR GRANTED	ORIGINAL AREA (ha)		CURRENT AREA (ha)		% CHANGE NON-PROD.		TOTAL AREA CHANGE (ha)	ORIGINAL AAC (m3)	CURRENT AAC (m3)	% CHANGE IN AAC
		PROD.	NON-PROD.	PROD.	NON-PROD.	PROD.	NON-PROD.				
1	1982	268,300	136,200	268,300	136,200	100.0	100.0	0	619,000	619,000	100
10	1982	114,400	423,800	114,400	423,800	100.0	100.0	0	450,000	1,730,000	384
26	1981	1,161,300	369,700	1,161,300	369,700	100.0	100.0	0	2,300,000	3,500,000	152
33	1982	354,300	208,100	288,077	232,593	81.3	111.8	(41,730)	1,700,000	1,769,500	104
37	1987	244,193	95,739	244,193	95,739	100.0	100.0	0	1,645,030	1,661,030	101
38	1987	81,268	33,939	81,268	33,939	100.0	100.0	0	392,890	396,890	101
39	1987	292,973	150,652	292,973	150,652	100.0	100.0	0	1,429,580	1,445,580	101
40	1987	886,503	1,442,769	886,503	1,442,769	100.0	100.0	0	1,850,000	1,815,162	98
41	1987	642,900	873,404	642,900	873,404	100.0	100.0	0	1,250,000	1,710,173	137

TSA Number and Name

- 1 - Arrow
- 10 - Kalum
- 26 - Quesnel
- 33 - Kingcome
- 37 - Strathcona
- 38 - Arrowsmith
- 39 - Sunshine Coast
- 40 - Fort St. John
- 41 - Dawson Creek

Most significant in the findings of this question is the inconsistency of how "accessible" or "operable" land base is defined from TFL to TFL or TSA. Yield calculations for a particular TFL or TSA can be significantly impacted by this definition as they are directly related to the size of the land base used in the analysis.

Another significant finding is the differences in the definition of "productive" land base. The findings indicate that for the most part there is not an objective definition and where there is, the definitions are very different. Again, yield calculations for a particular TFL or TSA can be significantly impacted by this definition.

Some TFL's are unable to define accessible mature and accessible immature hectares. Not being able to make this distinction may have a significant impact on their yield analysis.

There appears to have been "balance" between the harvest on Schedule A lands (licensee private land or licensee old temporary timber tenure included in the TFL) and Schedule B lands (crown land within the TFL).

QUESTION 3

- a) *What was the date of the original inventory?*
What standards were used in this inventory?
What were the confidence limits of the inventory?
- b) *What is the date of the latest inventory?*
What standards were used in this inventory?
What were the confidence limits of the inventory?
- c) *What inventory update activities have happened since the latest inventory was done?*
- d) *Is the current inventory in a GIS format?*

Findings to Question 3

Table 4 - Latest Inventory Date (page IV-12) indicates the latest date of the inventories for each TFL, MFU and TSA that participated in the study. It is apparent that, in general, the MFU's have the most current inventory. Most TFL's are current with a few exceptions. The TSA's are the least current. The MOF is currently embarking on a programme to update the TSA inventories.

The dates presented in **Table 4** (page IV-12) are the dates of the latest inventory or re-inventory. There may have been partial updates done since the date shown.

The question about GIS (computer graphics connected to the inventory database) was asked as it will be a valuable tool in keeping the inventory database current, therefore allowing more accurate yield analysis and planning to take place. The MOF has embarked on an ambitious programme to get the inventory databases and maps in GIS format by 1991.

In the responses received, it was apparent that the statistical reliability of the inventory work done on the TFL's met or exceeded MOF standards.

QUESTION 4

- a) *What have been the dates of the submitted and approved Management and Working Plans for the licence?*
- b) *What was the AAC for each of these plans and how was it calculated? Was there any adjustments to AAC during a working plan period? If so, what was the rationale for the adjustment?*
- c) *What percent of crown AAC contribution was there in each of these approved AAC's?*
- d) *What was the LRSY in each of these approved M&WP's and how was it calculated?*
- e) *What yield curves were used in each of these LRSY calculations?*
- f) *What is the expected date of when LRSY is reached?*

TABLE 4 - LATEST INVENTORY

TFL	YEAR	GIS	TSA	YEAR	GIS
1	1977		1	1977	X
3	1983		10	1973	X
5	1986	X	26	1963-75	X
6	1979	X	33	1969-74	
8	1985	Part	37	1969-74	X
10	1979		38	1969-74	X
13	1981		39	1969-74	X
14	1986	X	40	1964-71	
15	1975	Part	41	1964-71	
18	1975	X			
19	1989	X			
23	1990	X			
24	1985	X			
25	1988	Part			
26	1988	X			
30	1987	X			
33	1981				
35	1978				
37	1983	X			
38	1980				
39	1990	X			
41	1974				
42					
43	1985				
44	1978	X			
45	1981	X			
46	1971	Part			
47	1971				
48	1970				
49	1983				
51	1973				
53	1989				
GVWD	1969	X			

X Denotes the inventory is in a GIS format

Findings to Question 4

Appendix I contains examples of the Tables that have been summarized from the responses to these questions. A complete set of Tables for each TFL is available at the Commission's office. MFU's are no longer required to calculate AAC's.

Numerous findings came out of this question. Management and Working Plans (MWP's) for TFL's, written by the licensee and approved by the MOF, are the tools that state how the TFL will be managed for a specific five year period. It is also the vehicle that the MOF and licensee use to set AAC for that five year period.

Often, the "life-span" of a MWP has been significantly longer than five years. There are explanations to these extensions, even though they are violations of the TFL licence agreement.

It was very interesting to see the average "life span" of AAC calculations on particular TFL's in Appendix I. In some TFL's the average AAC life span over a period of more than 30 years has been close to two years while on others, it has been over seven years. Some TFL respondents did not include in their answer to this question the requirements of Bill 28, the Forest Amendment Act. In part, this Bill was a legislated 5% reduction in AAC from Schedule B lands taken in two equal portions in 1988 and 1989.

There are Management Plans for MFU's that also have a five year life span. They are written by the holder of the MFU and approved by the B.C. Assessment Authority. The management requirements for the forest are very simply stated as having to manage as forest land and reforest within set time constraints. There is no longer a requirement to set an AAC or manage on an even-flow sustained yield basis. This is a recent change (1986) and has met with some debate about whether or not it is appropriate.

TSA's have a "TSA Plan" that is intended to be equivalent to a TFL MWP. These plans are to have a five year life span. It appears from the findings that many of the TSA Plans remain in draft form and the five year schedule is not being met. This situation has raised concern about the opportunity to look at the accountability of the management activities on a TSA. Individual licensees within a TSA produce their own Management Plan for approval by the MOF. Again, without an overall approved plan for the TSA, it is difficult to measure the contribution of these individual plans to the management goals of the TSA.

The AAC process used by the MOF in TSA's is quite different to the typical process used by TFL's. On TSA's yield analysis is done by one Branch of the MOF, using input from a number of other Branches and then given to a different Branch for allocation to the various licensees in that TSA after the AAC is determined by the MOF Chief Forester. The calculated AAC for the TSA is then, not necessarily, the allocated AAC.

The calculation of AAC's and long-run sustained yields (LRSY's) is a complex and technical issue. It can very easily become confusing. Concerns have been raised about the lack of "overseeing" accountability for the calculation and allocation of AAC's and LRSY's on TSA's by the MOF. Concern, as mentioned above, has been expressed about how the resultant management activities of the various licensees and the MOF on a TSA are meeting the management assumptions used in that TSA's yield analysis.

It is clear that the process, methodology and assumptions used for yield calculations is significantly different from TFL to TFL, from TFL to TSA and from TSA to TSA. It is also clear that the importance of the next crop's growth and yields to AAC calculations have not yet been fully realized in the majority of yield calculations. This reflects historical legacy and also the fact that very few inventories have the accuracy to do these calculations effectively. Most importantly, there is very little "managed" stand growth and yield data to use in these yield analyses. These differences make the roll-up of AAC's and LRSY's questionable.

The changes in AAC from where it was originally set to where it is today by TFL can be seen in Table 3A and Table 3B (pages IV-6 to IV-9). The majority of the changes have been increases. Many factors have contributed to these increases. In 1967, yield calculations province wide incorporated a new utilization limit that, in some cases doubled the AAC. Land acquisitions, have in certain cases, increased the AAC (changes in land base can also be seen in Table 3A and Table 3B). Changes in the definition of "productive" and "operability" have had an effect on AAC calculations.

The concept of LRSY and its importance to the sustainability of yields appears to be poorly understood by both the responses from the MOF and the licensees. We had hoped to be able to provide the Commission with a picture of when the "fall down effect" would be reached. The responses we have received have not made this possible. LRSY is a very important concept in the continued sustainability of the forest industry in the Province. It is very

important that this concept be understood and that the tools to develop accurate LRSY's be developed and implemented as soon as possible.

Tables 5A and 5B - Indicated Mean Annual Increments for TFL's and TSA's (pages IV-16 and IV-17) reveal some very interesting statistics. The latest AAC and LRSY reported for each TFL and TSA has been divided by the latest reported productive land base for each TFL and TSA. This calculation provides an "indicated" mean annual increment (MAI). MAI is an indication of the productive capacity of the land base in that unit; it is the volume the land base can grow per hectare per year.

Comparing the findings shows some interesting results. The Kalum TSA is an obvious example. TFL 1 is surrounded by this TSA. TFL 1 has an indicated AAC MAI of 3.07, the Kalum TSA has an indicated AAC MAI of 15.12. Similar comparisons are not as dramatic but indicate inconsistencies in how yield analyses and allocations are done as well as how productive land base is defined.

The provincial map at the Commission's office indicates the location of each TSA and TFL. This map will allow the members of the Commission to make similar comparisons.

Using this same process, the following are the rolled-up, weighted average indicated AAC MAI's:

TFL - Coastal:	6.21
TFL - Interior:	2.67

TSA - Coastal:	5.44
TSA - Interior:	2.53

Note that the interior TSA figure is skewed by the Kalum TSA, if the Kalum is removed, the resultant weighted average for the Interior TSA's is 2.45.

To indicate the impact of these differences, if the average coastal TFL AAC MAI was applied to the coastal TSA productive land base, the possible increase from the current coastal TSA AAC would be 1,483,000 m³. The same procedure for the interior TSA's would indicate an increase of 2,536,000 m³. The impacts are obvious, the question is which, if either, is the "correct" indicated MAI.

TABLE 5A - INDICATED MEAN ANNUAL INCREMENTS FOR TFL's

TFL NUMBER	CURRENT AAC	CURRENT LRSY	TOTAL AREA (ha)	PRODUCTIVE AREA (ha)	% PRODUCTIVE	AAC INDICATED MAI	LRSY INDICATED MAI
1	720,000	625,000	596,933	234,649	39	3.07	2.67
3	108,000	90,000	78,775	52,891	67	2.04	1.70
5	110,000	93,900	34,320	33,243	97	3.31	2.82
6	1,300,000	1,033,700	170,025	143,822	85	9.04	7.19
8	267,750	121,000*	77,006	72,057	94	3.72	1.68*
10	219,000	219,000	231,116	61,820	27	3.54	3.54
13	27,717	42,800	37,114	22,146	60	1.25	1.93
14	140,000	115,800	139,443	53,635	38	2.61	2.16
15	68,406	61,000	48,195	44,458	92	1.54	1.37
18	200,000	181,800	74,572	67,443	90	2.97	2.70
19	932,132	922,000	195,102	113,147	58	8.24	8.15
23	920,000	585,500	761,733	522,748	69	1.76	1.12
24	115,000	**	54,677	36,496	67	3.15	**
25	653,000	**	458,180	210,488	46	3.10	**
26	39,598	41,800	8,903	6,952	78	5.70	6.01
30	427,800	420,900	180,764	158,931	88	2.69	2.64
33	27,500	23,800	8,458	7,769	92	3.54	3.06
35	88,000	88,000	39,451	37,397	95	2.35	2.35
37	1,085,000	895,400	188,992	134,561	71	8.06	6.65
38	249,882	263,000	218,031	62,822	29	3.98	4.19
39	3,818,000	3,079,000	794,143	537,952	68	7.10	5.72
41	430,000	356,100	1,019,728	271,137	27	1.59	1.31
42	132,300	92,000*	49,576	34,619	70	3.82	2.66*
43	49,600	50,000	10,165	5,793	57	8.56	8.63
44	2,748,000	2,630,000	453,097	376,048	83	7.31	6.99
45	254,642	**	287,410	60,113	21	4.24	**
46	1,076,640	**	181,461	152,235	84	7.07	**
47	1,052,950	**	227,232	203,426	90	5.18	**
48	348,500	326,000	661,365	468,561	71	0.74	0.70
49	361,074	**	144,923	134,732	93	2.68	**
51	203,600	127,000	77,431	52,902	68	3.85	2.40
53	187,630	182,800	87,415	79,620	91	2.36	2.30
GVWD	180,000	165,000	57,956	32,286	56	5.58	5.11

* Information from MOF records, not from submission

** Information not available

TABLE 5B - INDICATED MEAN ANNUAL INCREMENTS FOR TSA's

TSA NUMBER	CURRENT AAC	CURRENT LRSY	TOTAL AREA (ha)	PRODUCTIVE AREA (ha)	% PRODUCTIVE	AAC INDICATED MAI	LRSY INDICATED MAI
1	619,000	592,900	404,500	268,300	66	2.31	2.21
10	1,730,000	417,700	538,200	114,400	21	15.12	3.65
26	3,500,000	2,543,600	1,531,000	1,161,300	76	3.01	2.19
33	1,769,500	1,456,600	520,670	288,077	55	6.14	5.06
37	1,661,030	1,195,000	339,932	244,193	72	6.80	4.89
38	395,890	407,400	115,207	81,268	71	4.88	5.01
39	1,445,580	1,154,000	443,625	292,973	66	4.93	3.94
40	1,815,162	959,000	2,329,272	886,503	38	2.05	1.08
41	1,710,173	1,310,000	1,516,305	642,900	42	2.66	2.04

QUESTION 5

- a) *What has been the cut control history on an annual basis since the licence was granted to the last recorded year?*
- b) *What has been the volume harvested by contractors on an annual basis since the licence was granted to the last recorded year? What percentage of this volume has been handled by full phase contractors?*

Findings to Question 5

Appendix II contains graphical examples of the results of the findings to this question. The results are presented by individual licence or tenure and in a "rolled-up" fashion by tenure for the coast and interior. It is not clear that the responses are consistent in this question. Volume "charged" to cut control should be the scaled volume and the residue (waste) volume of that year on that licence. There have also been "letters of leniency" given by the MOF Chief Forester to compensate licensees for extended periods when they have not been able to operate, ie labour disputes. It is clear that all responses have included residue volume or leniency letters.

TFL's are required, as a commitment in their licence document, to harvest within plus or minus 50% of their stated AAC on an annual basis and within plus or minus 10% during a five year period. MFU's can harvest any amount of wood; their taxes payable are directly related to this volume harvested. TSA's are not considered a cut control unit by the MOF. The individual harvest licences within a TSA have cut control requirements similar to those of the TFL. The MOF state that having cut control of the individual licences within a TSA will give them cut control on the TSA. **Tables 6A and 6B - Cumulative Percent Harvest of AAC for TFL's and TSA's** (pages IV-19 and IV-20) indicate the cumulative percent of AAC harvest since the licence or tenure began.

Previously, TFL's were allowed to "slide" their five year analysis period as long as it stayed within the ten percent window. Recently, this opportunity has been removed.

TABLE 6A - CUMULATIVE PERCENT HARVEST OF AAC FOR TFL's
(includes Predecessor TFL's)

LICENCE NUMBER	TOTAL AAC (m ³)	TOTAL VOLUME CUT (m ³)	CUMULATIVE % OF AAC
1	41,521,940	34,319,976	82.7
3	2,410,502	2,227,973	92.4
5	3,850,350	3,873,488	100.6
6	38,185,600	36,786,600	96.3
8	2,911,587	3,210,731	110.3
10	5,187,953	4,808,542	92.7
13	1,002,572	957,705	95.5
14	3,112,339	2,905,629	93.4
15	1,645,615	1,592,614	96.8
18	5,158,198	5,091,669	98.7
19	23,339,195	22,944,634	98.3
23	30,378,178	26,372,856	86.8
24	10,781,549	11,056,658	102.6
25	17,263,700	17,223,156	99.8
26	INFORMATION NOT PROVIDED		
30	8,806,895	9,095,677	103.3
33	679,295	659,129	97.0
35	2,434,531	2,345,659	96.3
37	27,052,219	27,665,927	102.3
38	6,376,629	5,958,555	93.4
39	96,200,200	91,129,000	94.7
41	11,777,815	9,490,506	80.6
42	INFORMATION NOT PROVIDED		
43	135,000	113,149	83.8
44	86,044,700	83,736,900	97.3
45	7,573,476	7,092,639	93.7
46	31,537,709	33,128,752	105.0
47	15,214,715	15,844,164	104.1
48	1,045,500	777,889	74.4
49	8,861,889	9,099,630	102.7
51	INFORMATION NOT PROVIDED		
53	159,010	0	N/A*

* First year of operation

**TABLE 6B - CUMULATIVE PERCENT HARVEST OF AAC
FOR TSA's**

TSA NUMBER	TOTAL AAC (m ³)	TOTAL VOLUME CUT (m ³)	CUMULATIVE % OF AAC
1	4,970,530	4,679,721	94.1
10	7,470,700	9,484,102	127.0
26	24,200,000	24,555,183	101.5
33	13,534,500	12,072,237	89.2
37	4,951,093	5,082,956	102.7
38	1,182,670	1,233,022	104.3
39	4,304,740	4,711,766	109.5
40	5,515,162	3,361,832	61.0
41	4,210,173	3,144,312	74.7

TFL's until recently started each five year cut control period with a "clean slate". There was no carry over of under or over cut volume from a previous period. A regulation was introduced in 1988 to require a carry over effect for TFL's.

Licensees within TSA's have always had a carry-over effect on their cut control. The amount of under cut or over cut was added or subtracted to the next periods volume total.

There are penalties laid out in the Forest Act that stipulate the effects of not meeting cut control requirements. It is obvious from our findings that there have been numerous annual cut control violations. Determining five year violations on TFL's is difficult with the study data as it is not clear if or when a TFL may have opted to "slide" their five year analysis period. This information could be obtained if the Commission would like it.

The findings indicate that there have not been any penalties applied to annual violations of the cut control. There have been a few five year violation penalties and indeed two TFL's have experienced land withdrawals because of continued under cutting.

It is interesting to note that overall, the accumulated cut control on TFL's in the Province is 95.7%. The accumulated cut control on the TSA's involved in this study has been 97.1%.

When analyzing the graphs in Appendix II, care should be taken to remember that the figures represent harvested volume to AAC; they do not imply whether or not the "correct" AAC was in place.

Information was also gathered on the volume harvested by contractors on the TFL's. There are various dates when the licensees were required to harvest certain portions of their annual cut by the use of contractors. There are also commitments about the type of contractors that are to be employed. These dates vary significantly by TFL and the required percentages vary also. Generally, it does not appear that there have been serious, extended violations of these commitments. The intent and the effectiveness of meeting the intent of the "contractor clause" regulations have been questioned. It is generally felt that the intent of allowing outside "small" business access to harvest opportunities within a TFL has not been effectively met.

QUESTION 6

a) *What has been the level of activity, on an annual basis since the licence was granted, in the following areas:*

1) *Silviculture - hectares treated;*

- *Site preparation*
- *Reforestation;*
 - *Planting (include number of trees planted)*
 - *Natural*
 - *Avg. survival percentage of planted areas*
- *Brush control*
- *Spacing*
- *Pruning*
- *Thinning*
- *Fertilization*
- *Silviculture Surveys*
- *Other (please specify)*

2) *Protection*

- *Number of fires*
- *Area burnt*
- *Kilometres of protection access road built*
- *Number of weather stations maintained*

3) *Road development*

- *Kilometres of roads built;*
- *Surfaced/ballasted*
- *Not surfaced*
- *Winter travel only*
- *Other (please specify)*

4) *Research*

- *What forest management research activities have you undertaken on the TFL and if there are measurable units eg. growth and yield PSP's what were they.*

The Commission is very interested in the costs incurred in the above activities and what was the source of funding of these costs. If you have any information on the actual costs of the activities undertaken and how much of that has been reimbursed through the ledger system, Section 88, FRDA or any other funding source, it would be greatly appreciated. If you include administration costs, please document how these were derived.

Findings to Question 6

Examples of the graphs that have been developed from the responses to this question for planting are contained in **Appendix III**. A complete set of graphics showing levels of activities in planting, basic silviculture (site preparation, planting and brush control activities) and intensive silviculture (spacing, fertilizing, thinning, etc.) are available for review at the Commission's offices.

This was a difficult question for the respondents to answer. Many did not have all the information for silviculture, most had difficulty in the protection, road development and research portion of the question.

The MOF were able to provide costs for silviculture on the TSA's back to 1980. Information on silvicultural activities and costs beyond that date are not readily available. The MOF were unable to provide us with information on road development activities or costs; protection activity and cost information was provided.

Research activities tend to be difficult to identify as being associated with any particular TSA, MFU or TFL. Information has been gathered on research, but it will require a significant amount of time to establish where it is applicable and what costs should be associated with any particular tenure.

The cost information from the TFL's is questionable. The "real" costs of these management activities have, in most cases, not been recorded. The costs that have been recorded reflect what was recorded in the old stumpage "ledger" system or through Section 88 records. Typically, these are not the true costs, they are costs that the MOF would accept under these reimbursement systems.

The "ledger system" and Section 88 were reimbursement processes the MOF put in place to compensate licensees for forest management costs. In each, the MOF would define what was an acceptable cost. The basic difference between the ledger and Section 88 was that MOF approval was needed prior to an activity taking place under Section 88. Under the ledger, the licensees were not required to seek MOF approval before costs were accrued on the ledger. Section 88 was an outcome of the 1976 Pearce Royal Commission where Pearce was concerned about the lack of accountability of the public's money under the old ledger process. The licensees contend that these "acceptable" costs were much less than their actual costs.

There has been much more silvicultural activity on the coastal TFL's than on the interior TFL's. In both cases, the level of activity has been generally increasing and has been directly proportional to the government's regulations and reimbursement practises. The impact of the Forest Resources Development Agreement (FRDA) has had a significant impact on the level of silvicultural activities on the TSA's, especially in the interior. These findings can be seen in the graphs available at the Commission's office.

Recently, (legislation introduced effective October 1, 1987), the licensees have been required to reforest denuded areas in TFL's and TSA's to a state called "free growing" (a point of stand development where "sufficient" trees are established and free of serious competition from other vegetation) at their own expense. Forest management activities beyond this basic level on TSA's is then the responsibility of the MOF. The findings indicate that on TFL's, forest management activities beyond this basic level are currently limited because of government policy and practises.

The graphs indicate that various licensees have reacted to this legislation differently. There does appear to be a trend downwards in the TSA's and some TFL's in basic silviculture.

TFL licensees feel they do not have incentive to practise any forest management beyond free growing. In fact most licensees have suggested the current legislation and regulations are a disincentive to practise forest management to a level more than the minimum required by the MOF to maintain harvesting rights. There is also a concern expressed by them about making the investment into intensive or "incremental" (the current term the MOF uses to describe forest management beyond free-to-grow) forest management when there is no security that the licensee will benefit from this investment. The recent withdrawal of 5%

of each TFL's AAC for the small business programme is often brought up in these discussions.

Most apparent in the findings are that neither the MOF nor the licensees appear to have a strategic plan for what forest management practises are needed today for the sustainability of the industry in the future. There are not long-term strategic fibre-flow goals expressed in terms of the quantity of wood, the quality that the wood should have and the harvest schedule that the wood will become available on. Without these goals clearly defined, there can not be a clear tactical plan for today's management that focuses at what should be done, where it should be done and to what level of intensity it should be done.

Related questions that have been presented to the study are as follows:

- Without clear goals on where we are going, how can we know if what we are doing today is correct?
- Are the millions of dollars being spent in the name of good forest management being spent effectively?
- Can we really show the impact of what the withdrawal of a portion of a working forest's land base really has on current and future yield opportunities?
- Can we tell the public what such a withdrawal will cost in terms of added forest management activities to attain that same fibre-flow goal from the reduced land base, if it is possible at all?

It was anticipated that the study would provide the Commission with historical levels of reforestation, both naturally and artificially regenerated. Few respondents, including the MOF, keep a record of naturally regenerated lands. Successful regeneration does not and should not equate to planting alone. Planting is an abused statistic. The number of trees planted is often used to reflect the level of reforestation. This is incorrect as it ignores important management tool of natural regeneration. In fact, if it will occur naturally with the species, density and distribution desired, this should be the method of regeneration. The question has been asked, have we gone to the expense of planting sites that nature also will regenerate and so end up with too many trees on that site?

The study had also hoped to show the Commission levels of survival of the planting that has happened. This is another statistic that is not recorded well by industry or the MOF. The important statistic is how many surviving, growing trees are there on an area that has been regenerated.

With the exception of a few larger licensees on the coast, no licensee funded research has happened on TFL's. Most research funding has been provincially sponsored with some federal sponsorship lately through FRDA. Generally, it is felt that the level of forest management research is inadequate for an industry of the importance the forest industry is to the Province, notably in growth and yield of managed and unmanaged forests.

Few licensee respondents included the contributions made to the Forest Engineering Research Institute of Canada (FERIC), a co-sponsored research institution for wood products FORINTEK and contributions made to the Pulp and Paper Research Institute of Canada (PPRIC).

The study wanted be able to provide the Commission with the level of effort of forest management expenditures on each tenure type by the immature productive land base in that tenure type. Due to the responses received, the findings are limited to looking at the average annual silviculture costs over the total productive land base of the tenure type for the period 1984-1988. The (weighted average) findings for the areas involved in the study are as follows:

	<u>WTD Average</u>	<u>Range</u>
Interior TFL's	\$3.62/hectare	\$0.36 to \$13.37/hectare
Coastal TFL's	\$4.47/hectare	\$0.50 to \$15.83/hectare
Interior TSA's	\$4.55/hectare	\$3.48 to \$14.28/hectare
Coastal TSA's	\$7.27/hectare	\$5.44 to \$13.46/hectare
Interior MFU's	\$7.54/hectare	
Coastal MFU's	\$9.92/hectare	\$4.23 to \$60.56/hectare

The impact of FRDA funding on the TSA's is reflected in these figures. (FRDA focused on TSA's; only a very small percentage of FRDA was expended on TFL's). If the period 1980 to 1984 is used, which is outside the influence of FRDA, the findings for the Coastal and Interior TSA's are \$7.16 and \$1.83 per productive hectare, respectively. The responses to the question that produced these findings are questionable at best. Caution is urged in using these figures other than to indicate a trend. The ratio of immature to mature land

could not be accounted for. Costs were often submitted as "average" and may or may not have included overhead and administration. The definition of "productive" land is obviously different between management units and tenures. These differences have not been accounted for.

These findings compare with a study done at UBC titled "The Implications of Various Silviculture Funding Arrangements for Privately Managed Public Forest Land in Canada" by Luckert and Haley, which found the following in B.C.:

Average Annual Silviculture Expenditures 1981-1985

Dollars per Productive Hectare per Annum

- Taxation Tree Farms (MFU's): \$21.82
- TFL Schedule B lands: \$ 5.40

QUESTION 7

- a) *What resource inventories other than timber have been completed on the TFL? Please list the inventories (e.g.) recreation, soils, wildlife, range, etc.*
- What standards were used in these inventories?*
- What were the confidence limits of the inventories?*
- Who did the inventory work and what funding source was used?*

If these inventories were partial coverage of the TFL, please identify area (in hectares) covered.

- b) *What plans are in place for non-timber inventories in the next five years?*

Findings to Question 7

The findings in this study are consistent with the findings of Forest Resource Inventories Study recently completed for the Commission. Typically what has been done has been as a result of legislation or regulation or has been done on a "local" basis to provide input to a resource conflict in that local area. Outside of the removal of "environmentally sensitive

areas" (ESA's) from the land base in yield calculations, little of this information has been formally used in yield analysis. Harvesting plans have used specific information for specific drainages. As stated in the Forest Resource Inventories Study, done for the Commission, more work has to be done to create reliable, accessible non-timber resource inventories to allow forest management planners to truly create integrated resource management plans.

Individual responses are catalogued at the Commission's office.

QUESTION 8

- a) *What is the public access policy on the TFL?*

Findings to Question 8

All respondents answered with an "open door" policy into non-active areas during acceptable fire hazard ratings.

QUESTION 9

- a) *During the calendar year 1989, how many staff RPF's are directly involved with forest management on the TFL? How many RPF full-time equivalents were directly involved with forest management on the TFL?*

Findings to Question 9

The intent of this question was poorly understood. What was looked for was how many registered professional foresters (RPF's) are involved in management on the TFL, TSA or MFU and how many full-time equivalents do these RPF's represent?

The responses do not allow the opportunity to give the Commission a significant response to this question. As of December 31, 1989, there were 2040 RPF's in the Association of B.C. Professional Foresters. Unfortunately, it is not know how many are working in B.C.

and what their roles are. Dividing this number of RPF's by what our best estimate of the working forest land base, 52,308,599 total hectares and 24,160,046 productive hectares, results in a number of 25,641 total hectares and 11,843 productive hectares per professional forester.

It was pointed out in many of the responses that the effective management of our forest lands is not solely the responsibility of RPF's. Many other professionals and technicians play significant roles in the management of B.C.'s forests.

QUESTION 10

- a) *What commitments were made by the licensor and licensee in the original licence document? What has been the attainment and maintenance of these commitments?*
- b) *What commitments have been made in any renewed licence documents by the licensee or licensor? What has been the attainment and maintenance of these commitments?*
- c) *What commitments have been made in Management and Working Plans since the original date of the licence? What has been the attainment and maintenance of these commitments?*

Findings to Question 10

Generally this question was not as well answered, as was anticipated. A number of responses did not answer it at all. A copy of the original licence agreement and the current licence agreement has been made. These documents have been reviewed and the commitments made in each highlighted on the documents. These documents are at the Commission's office.

The commitments made in the original agreements were varied and unique in each document. The more recent documents show a level of consistency in commitments. There has been a shift to place more of the area specific commitments into the MWP documents in recent years.

A lengthy report would be required to go through all the commitments TFL by TFL. In summary, there were a number of commitments made in the original licences that were not met. In recent licence documents, it appears that most commitments have been met or have been excused by the MOF.

A review of the Fletcher Challenge TFL submissions reveals the level and detail of the commitments made in the licence documents and subsequent MWP's. A copy of their TFL 46 response is contained in **Appendix IV** for your information.

The commitment most often recognized in the responses was the change from an original perpetual licence to a 25 year term, 10 year renewable licence. The other most recognized commitment was that the licensor gave exclusive rights to the licensee to harvest timber in Crown area of the TFL. The licensees feel this commitment was broken with the removal of 5% of their Schedule B AAC for the Small Business Forest Enterprise Programme (SBFEP).

Most of the original TFL Licences required the licensee to build a conversion facility appropriate to the size of the harvest from the TFL. The findings indicate that this did happen where required. The current licence agreements state that the licensee must give the MOF three months notice of conversion facility closure but does not make a conversion facility a commitment to the agreement.

Many of the original licences committed the licensee to planting certain areas within the TFL that were not satisfactorily restocked (NSR) at the time the licence was granted. The findings indicate that this commitment was generally not met. The licence stated that the MOF could perform this work and deduct the costs from a deposit made by the licensee. The findings indicate that this option was not taken by the MOF and, that the amounts of the deposits were such that they would have been depleted quickly if this option was exercised by the MOF.

Some of the early documents state that forest management costs were to be considered as logging costs and allowed for in the appraisal, some did not say this. The current documents do not say who will fund forest management. Until the change in legislation on October 31, 1987 were it is explicit that "basic" forest management costs are the responsibility of the licensee, the funding issue was handled in MWP's. Typically, the wording in these MWP's

would be such that the licensee would conduct forest management activities as long as there was some reimbursement for their costs.

Many specific commitments have been made in various MWP's. It is apparent that attainment and maintenance of these commitments has not been consistently met by either the licensee or the licensor.

QUESTION 11

- a) *Have hardwood inventories ever been included in an AAC calculation for the TFL. Has there been any harvesting and management of hardwood stands on the TFL?*

Findings to Question 11

Few TFL's have included hardwoods in their AAC calculations. Recently some TSA's have included hardwoods in their yield analyses. The Peace TSA was split in 1986 into the Fort St. John and Dawson TSA's. At that same time hardwoods were included in the yield analysis, the combined AAC of the two successor TSA's is double that of the original TSA.

It is not clear from the findings if the resultant harvest on these management units is proportionally consistent to the contribution of softwoods and hardwoods to AAC.

QUESTION 12

- a) *Do you have any comments or qualifying remarks to bring to our attention within the context of this questionnaire?*

Findings to Question 12

Very few respondents took this opportunity. Most responses were related to the time allowed to respond to the questionnaire. No other significant comments were made.

CONCLUSION

The comments provided during the study indicate that there is a lack of a feeling of security of harvest with the TFL and TSA licensees. This has contributed to a lack of willingness to practise forest management beyond the what is necessary to retain cutting rights.

It is apparent from the information received that there is a significant difference between the "attitude" towards management of the coastal and interior TFL's. The coastal TFL's tend to be much larger in size, much more productive and most importantly tend to be the sole, or at least largest, contributor of wood supply to the licensees conversion facilities. The converse is generally the situation in the interior. Many of the interior TFL's appear to have been managed by the licensees in much the same manner as they manage their Forest Licences within a TSA.

There is a lack of strategic planning for what is required to meet long term goals and ensure the economic sustainability of the forest industry in B.C. on a forest by forest basis. The provincial-level forest practises legislations and regulations are not effective nor efficient at accomplishing these goals. We must recognize that every forest has a unique structure, biological and financial capability and set of users. Management design must therefore be unique to these forests to recognize these differences.

The lack of growth and yield data for managed and unmanaged second growth stands in the province makes effective strategic planning difficult if not impossible. Quoting the Roman philosopher Seneca at about the time Christ was born "When a man does not know what harbour he is making for, no wind is the right wind."

When these strategic goals are in place, they must be coupled with appropriate planning and budgeting horizons and feedback loops to ensure goals are being met or have the opportunity to be met or revised if necessary.

The current variety of methodology and definitions used in calculating yields by management unit throughout the Province gives provincial summaries lack of meaning.

The industry and the MOF continue to frustrate each other and themselves with a piecemeal approach to forest management. No business can be successful without a complete

"systems" (input/output) approach to strategic and tactical planning. The forest industry in B.C. cannot be confident of sustainability until this type of planning approach is in place and effectively working.

**REVIEW OF FOREST TENURES
IN
BRITISH COLUMBIA**

(May 1990)

**British Columbia
Forest Resources Commission
700 - 747 Fort Street
Victoria, British Columbia
V8V 1X4**



**STERLING WOOD
GROUP INC.**

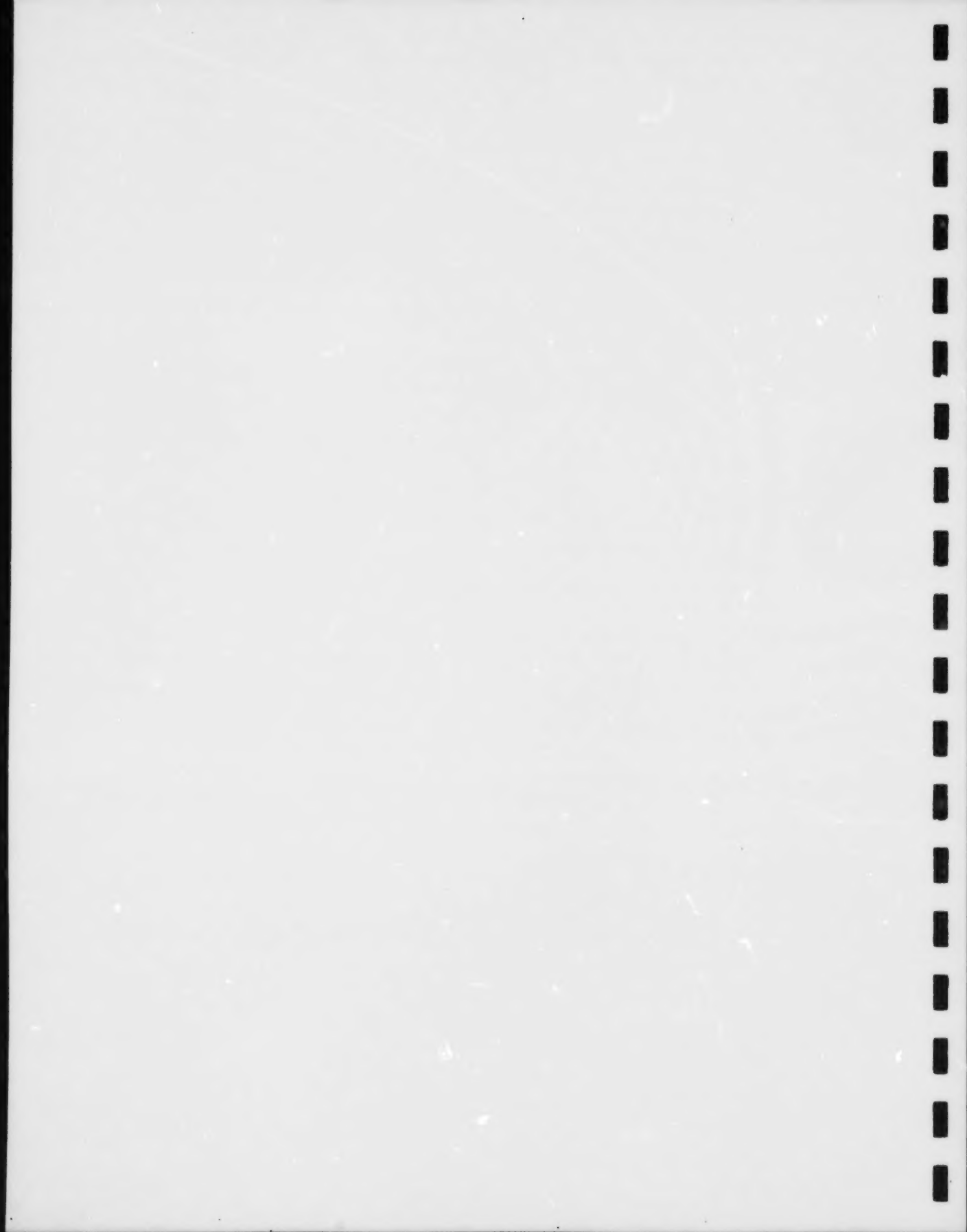
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Appendix I - Characteristics of Tenures in British Columbia



STERLING WOOD
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1.0 INTRODUCTION

1.1 Definition of Forest Tenure

The vast bulk of the Canadian land base is publicly owned. This is particularly true of forest land and more so in the western, later-settled provinces. The proportion of public ownership in British Columbia is 95%. With relatively minor exceptions, such as portions of the E&N Railway land grant, virtually the only private land in the province is urban or devoted to agriculture.

This extreme degree of public ownership of the land and the resources on it is combined with an entrenched historic reliance on the private sector to utilize those natural resources. With the exception of hydroelectric power and municipal water supplies, virtually all our timber, fish, minerals, oil, gas and water resources are developed and used by private individuals and corporations.

The historic problem facing governments has been to devise systems for allocating to the private sector, the rights to utilize resources owned by the public sector, without selling the land. This has been done over time by Canadian governments (mostly the provinces) through the implementation of a complex system of grants, leases, licences and permits. The array of these instruments applied to timber resources is collectively referred to as "forest tenure". It is the principal instrument of government forest policy.

Economists argue that the best means of achieving efficiency in the productive use of resources is through a market system, and that such a system functions best where there is a property right. Forest tenures are an effort to achieve this by allocating property rights in the form of exclusive rights to specific resources. The public, as owner, has the ability to lever the efficacy of allocation and use of the resources through the conditional granting of these rights. Thus it follows that when resources are surplus or abundant, resource values are low and the system of users' rights under these conditions tends to be absent or very crude because the organizational cost to government of arranging a more complex system would exceed government's share of the value of the resource. As resource values rise, more complex allocation or tenure systems are affordable and are implemented. Increasing scarcity and competition breeds increasing complexity. This has been the history of the development of forest tenure systems.

Difficulty arises for government where other resources are available on the forest land base but are in practice never allocated to the forest tenure holder. The tenure holder has property rights only to the timber. He has no property rights to wildlife, water, minerals or recreation. Governments attempt to solve this problem by imposing regulation on the forest tenure holder to control his effect on the well-being



of these other un-allocated resources. Again, the more valuable these resources are perceived to be the more complex and costly the regulations applied. To quote Dr. Peter Pearse:

"The spectrum of property rights ranging from the comprehensive freehold to the non-exclusive common property rights of access is thus paralleled by an increasing dependence on government to manage the resources and regulate use. Generally, governments need not intervene much where rights are comprehensive, long term, exclusive, and transferable. But where rights are narrow, short term, and exercised in common, market incentives cannot be relied upon; governments must assume responsibilities for managing the resources and protecting users from each other if a high level of economic performance is to be achieved. We can leave the management of private farms and timberlands to their owners, but common property fisheries are regulated in fine detail."

The reference to the common property of the fisheries resource and its over exploitation is a dramatic example of the so called "tragedy of the commons". This analogy was first described in 1833, and updated in a modern context by G. Hardin in 1968. In general it describes the situation whereby the inevitable pursuit of short-term private benefits by all users of the common resource invariably results in the eventual degradation or destruction of the resource. The world abounds with examples of common resource degradation through such activities as over-grazing, over-fishing, over-hunting, over-irrigation and over-cutting of fuel wood and timber. "Everybody's property is nobody's property" and common property is invariably over-used and degraded. Many of the world's most tragic conservation problems arise because no private property rights have been established to the resources concerned. A somewhat over-stated historic example used to illustrate this is the differing fates of domestic beef cattle and the North American bison. Cattle, a privately owned resource, thrive. Bison, a commonly owned resource, are virtually extinct. Ken Boulding, an economist and poet, has illustrated this in a limerick:

The Buffalo, nobody's property
Went o'er the plains, Clippity, Cloppity
In thunderous herds where now only birds
Fly and rabbits go Hippity, Hoppity.

The cow, now, is kept on the farm
And flourished and came to no harm,
For its owners to thrive
Had to keep it alive
So property worked like a charm.

Development of public forest policy and the resulting forest tenure systems are the result of the recognised need to provide some degree of exclusive rights to the timber resource in order to regulate exploitation. Successive governments



have retained this critical feature of exclusivity even though public economic and social priorities have continually changed. This is a basic element of all forest tenure systems. A much-used comparison in regard to forest tenures is the landlord - tenant arrangement. Again, to quote Dr. Pearse:

"The government thus plays the role of landlord, while the users are private parties driven by the usual market incentives. The system of rights used to provide entrepreneurs with access to public resources is therefore crucial in three ways. First, it influences the efficiency with which the resources will be used and developed; that is, how much value will be realized from them. Second, it determines who will enjoy the economic benefits derived from the resources. Third, it governs the allocation of responsibilities for managing and developing them."

The purpose of this paper is to describe in some detail the forest tenure system for allocating specific property rights and the responsibilities which go with the allocation. The topic is complex and it is valuable to recall several critical elements common to all forest tenures in some degree. The degree to which these elements vary usually describes the "security" of the tenure. The key elements, reviewed in specific detail by tenure form later in the paper, are:

- Allocation Process - The means whereby the forest tenure form is awarded: direct allocation, competition in some form, public hearing and evaluation process and so on.
- Ownership Rights - The degree of exclusivity of the rights conferred in regard to competition by other timber users.
- Term - The term of tenure life, the mechanics for renewal or extension and the means of termination of particular tenures.
- Transferability - Whether or not all or part of the rights allocated can be transferred to others and under what terms.
- Responsibility - The array of conditions for forest management, integration of other users and financial charges which go with the tenure rights conferred.
- Base - The form of the allocation right to the timber supply in terms of whether it is a use of specific geographic area or a specific right to harvest or utilize a particular volume or category of timber.



Succeeding sections of this paper describe British Columbia's forest tenure systems in greater detail, the history of their development and their present status in an environment of rapid change.

1.2 The Purpose of Forest Tenures

As noted, forest tenures are the contractual arrangements used by government to transfer to the private sector rights to utilize the public timber resource. This has been an evolving process dependent on the priorities of particular governments at particular times. Within this framework certain general purposes have motivated the tenure allocation process:

1.2.1 Socio-economic Development

Allocation of forest tenures has been used from earliest days to encourage settlement. The intent was to populate a so-called "empty land" by attracting investment and creating employment. During this process the forms and instruments of tenure have changed from crude pioneer forms to very sophisticated agreements but the intent has remained the same. Award of forest tenures for this purpose continues in British Columbia at the present time. There are currently several proposals in process for the specific purpose of employment expansion through investment in relatively undeveloped areas of the province. (For example the west-central, the north-east and the south-east regions).

1.2.2 Investment Incentive

Investors and lenders require stability of raw material supply to sustain manufacturing investments. The larger the investment and the longer the capital amortization period, the greater the stability of supply that is required. Investment will not occur if the supply risk is too great. Governments reduce this risk through the forest tenure system by tailoring agreements to provide assurance of the amount of raw material supply, the length of time it will be supplied, and the costs and conditions under which it will be supplied. The present British Columbia tenure system provides this to meet virtually every conceivable situation ranging from a very small timber volume, for a very short time to very large timber volumes for up to 25 years.



1.2.3 Revenue Generation

One of the intents of most governments is to generate revenue for administration and social spending. This requires creation of a tax base to create the government revenue stream. Forest tenure allocation is used for this purpose. The intent is to derive revenue from various charges for harvest of the forest resource (in economists' terms to "capture the economic rent") and to tax the additional revenue generated from resultant manufacturing and employment incomes. In British Columbia the Government collects rent as a land-use charge and stumpage or Royalty as the economic rent for the timber values being exploited.

1.2.4 Forest Management Incentive

As improvements in forest management practices have been recognized and required by the public owner, governments have employed the tenure system to meet these requirements. Contractual arrangements have been varied to do this. Depending on tenure form, procedures range from requiring the tenure holder to carry out various operations such as reforestation at his own expense, to levying charges to allow government to do the job itself.

In addition, other incentives may be offered for extra silviculture work such as stand thinning, weed control and fertilization at the expense of the tenure holder. These incentives may include the tenure holder benefiting in the anticipated harvest of future timber crops and, additionally, of sustaining or possibly increasing his current rate of harvest. These practices constitute "intensive" or "incremental" forestry.

1.3 Administration of Tenures and Stewardship

There is a perceived idea of "stewardship" in all forest tenures. It is assumed that the tenure holder has a responsibility, at least to some degree, to act as a custodian or steward for the well-being of the particular resource or area he has been allocated on behalf of the land owner. In general, actual stewardship is motivated only when there exists a real economic stake in the resource for which he is custodian. The tenure holder is expected to be a good citizen and to act as steward for the government. At present in B.C. there is little economic incentive provided by the tenure process for private enterprise to practice good stewardship because it is more costly for the tenure holder. Instead, motivation seems to come indirectly through prudence. Good housekeeping lessens the amount of costly intervention by the government, and demonstrated good



citizenship raises the esteem of the company in the eyes of the public who might otherwise embarrass the company over controversial issues.

There is also a vaguely understood assumption that the private steward is somehow looking after all the resources even though he is allocated the rights to only one of them. He is assumed to have a responsibility for, but not rights to, the other resources.

There is also another less clearly perceived idea of stewardship required of government on behalf of the real land owner, the public. It is an expectation that government political and bureaucratic actions will also preserve and enforce the good housekeeping concept expected by the public owner of forest tenure holders. This is not necessarily the reality of the situation. Again as noted by Dr. Peter Pearse:

"The preference of Canadians for public ownership is not matched by enthusiasm for big bureaucracies to manage them."

There is a fundamental contradiction in a preference for public ownership on one hand and preference for small government on the other. This is an elemental issue of forest tenure allocation. One steward attempts to delegate responsibility to another steward through a matrix of contractual agreements, incentives, regulation, planning, inspections, persuasion and penalties. All this against a background wherein the obvious horizon for growing forest crops is between sixty and one hundred years, the political horizon is three years and the budgetary horizon is one.

Stewardship by the Tenure Holder

The expected stewardship by the tenure holder varies greatly within the present tenure context. The greater the extent and security (i.e. economic self interest) of the rights allocated, the greater the performance expected. This is generally the case at present in British Columbia. Larger, longer term and more extensive tenures demand the most responsibility; and temporary, minor licences the least. All variations between the limits occur in the B.C. system.

The longer term tenure holder assumes, and has incentive for, many assigned or implied responsibilities for public relations and input, planning and performance not expected on other forms. As tenure security diminishes, this incentive diminishes and the role passes progressively to government agencies until virtually everything but actual harvest is regulated or done by government.



With the most secure forms of tenure, a contradiction develops because the stewardship related to those resources other than timber affects the economic self interest of the holder. He is allocated the timber resource only, but he is also assumed to be responsible for many other resources which normally neither he nor other agencies can accurately value. This is not the case at the lower end of the tenure profile. There the licence holder has virtually no concern or confusion because other resources are totally managed by government.

Stewardship of the Government

Stewardship expected of government agencies has recently become very broad and is widening rapidly. Consequently many agencies are now involved. The Ministry of Forests (Forest Service) for many decades was presumed to be the primary agency in the management of the forest land base through forest tenures. As long as the primary objective of government was only the protection and the extraction of timber values, this was largely the case and was generally unquestioned. In recent times this has changed as a broad spectrum of other resource values has been recognised. This has led to the expansion of scope of the Forest Service to include many new functions but also to the escalating presence and impact of other resource agencies on the same land base. In certain cases, such as the fisheries resource, it has led to the expanded presence of Federal government agencies as well. In other cases it has led to increasing participation by Municipal agencies. Governments exercise control through a process of planning, approvals, delays, incentives, audits and penalties. Again the public expectation of performance by government agencies at all levels is expanding rapidly. This requires intense inter-agency liaison and large and well qualified staffs operating locally in the field.

In many cases the public expectation is not matched by a willingness to finance, through the budgetary process, the funding of such staffs. Moreover, public service incentives tend to be such that promotion is from the field to the office. The consequence is often that the junior staff in the field must make decisions beyond their experience and qualification. This tends to be a reversal of the traditional European professional practice of locating experience and prestige in the field. Additionally, efficient field operations in a seasonal province such as B.C. depend on judicious timing in the spending of funds. This seems obvious but in many areas of B.C. it is not practiced because of the contrary timing of actual budget allocation. The fiscal year begins in April close to the beginning of the field season, but budget allocations tend to occur much later. The result is that much of the best field season is often missed, much spending occurs under the poor weather conditions and a spending surge occurs in the inappropriate months of February and March to "use up the budget". The traditional government budgetary year and the optimal forestry year are simply out of phase and this is costly. It is a chronic problem with a long history.



In summary, the public expects a broadening and more complex assurance of performance in the field but the budgetary and bureaucratic process tends to limit realization of this expectation. Different means of easing this problem, such as contracting operational as well as audit and inspection functions to third independent parties are employed but the evidence is that the public is not always comfortable with this delegation.

1.4 The Role of the Public in the Tenure Process

Until recently the public had very little voice in allocation of timber rights. Any policy reflecting public opinion filtered down from politicians through the process of their election to the legislature. The general public seemed to be content with this situation. Participation in tenure allocation issues and performance, including the Royal Commissions, was largely left to those with direct interests in the process. Change in this attitude became apparent during the Pearse Royal Commission and has escalated rapidly ever since. Today virtually all aspects of forest tenure and administration receive close public attention. The 1979 Forest Act provided a formal process for public input during the process of allocation of major timber rights i.e. Tree Farm Licences and Pulpwood Agreements which may be 25 year commitments. The Act requires that the Minister or his designate hold a public hearing to review applications, during which time any person may make a submission about any or all applications.

In practice these views are considered by the Ministry of Forests when they formulate their recommendation to the Minister. In addition the Act requires that many other socio-economic and forestry factors must be considered in the decision to award a licence.

Also since 1979, the Ministry of Forests has adopted a policy which encourages public input at various planning levels. TFL holders are required to prepare a Management and Working Plan every five years to govern the direction, activities and cutting levels for the TFL area for the forthcoming 5-year period. It also lays out goals and standards of minimum performance for silviculture activities such as planting.

The Forest Service now requires the Licensee to make provision for public input into the plan in two ways.

- 1) When the company forester initiates the preparation of the plan he will advertise that he is doing so and will invite input from the public as to their concerns and advice.



- 2) When the draft plan has been prepared to the initial satisfaction of the Regional Manager, it will be advertised and displayed for public review and explanation. Thirty days are allowed for submission of written comment and, following that, the plan will be amended if necessary. Responsibility for final approval of the plan lies with the Chief Forester.

Other channels by which the public may play a role in tenure process are less direct:

- a) Through the attention of elected representatives in the legislature, municipalities and regional districts.
- b) Through the lobbying efforts of special-interest groups.
- c) In special circumstances, to right a wrong, through the Ombudsman's Office.

In some circumstances there are special values or resource issues which require an extra level of planning. Examples of these are community watersheds (Nelson), and areas of high aesthetic or recreational values (Clayaquct Sound). In these cases the Minister may set up a local resource use planning team with a mandate to provide guidance for the planning of multiple use of the forest resources. In addition to resource experts, the team may include local individuals who can put forward local public concerns and advice. These groups traditionally had only an advisory role and there was no obligation for the government to heed their advice other than to exercise due diligence. However, a more substantive role for these public interest groups is evidently evolving.



2.0 THE BRITISH COLUMBIA FOREST TENURE SYSTEM

2.1 Land Base Distribution of Canada and British Columbia

Canada's total land area (excluding water) is 921 million hectares. Of this, 453 million hectares is forest land and only 398 million hectares has been inventoried. (Forestry Canada 1987).

Throughout Canada, governments have retained ownership of a high proportion of forest land rather than transferring ownership to the private sector. Of Canada's 244 million hectares of inventoried productive forest land, 80% is provincially owned, 11% is federally owned and only 9% is privately owned.

The total Canadian timber harvest in 1986 amounted to 177 million cubic metres with almost half coming from British Columbia's forests (Figure 1).

British Columbia's total land area is 95 million hectares. Of this, 40 million hectares is forest land. All of it has been inventoried although much of the inventory is now quite old (15 and 25 years). Twenty six million hectares is estimated to be productive and economically accessible to forestry enterprise (Figure 2).

British Columbia has a higher proportion of forest land under public ownership than does Canada: 95% is publicly owned and under provincial jurisdiction. In the 1987/88 government fiscal year this public resource provided 80 million cubic metres of timber. The other lands, Federal, Indian and private, produced 9 million cubic metres.





Figure 1

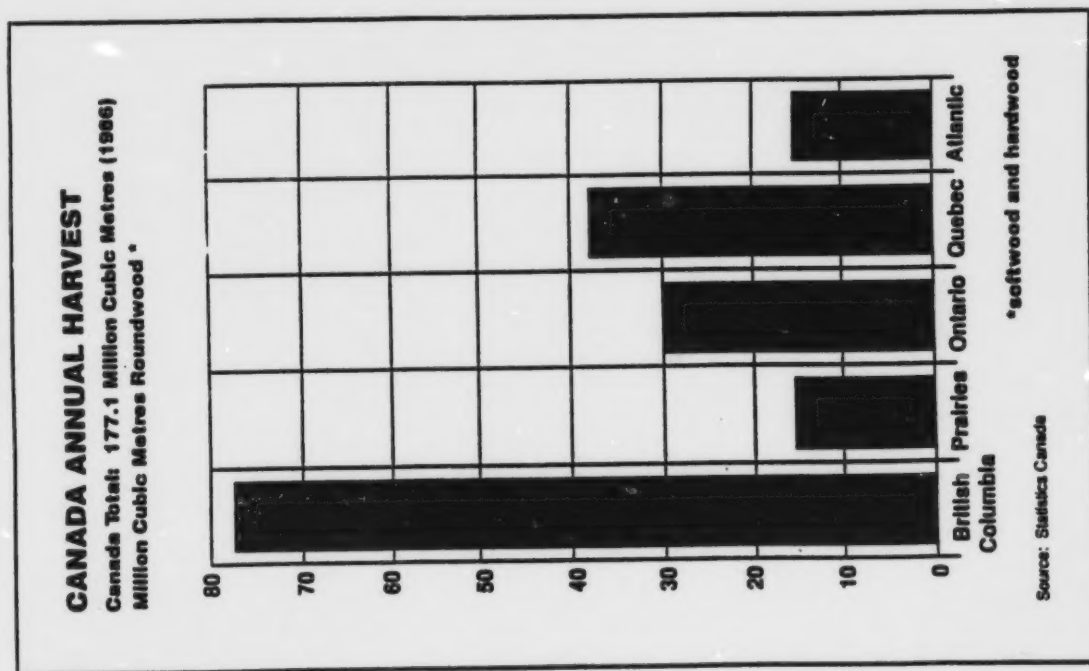
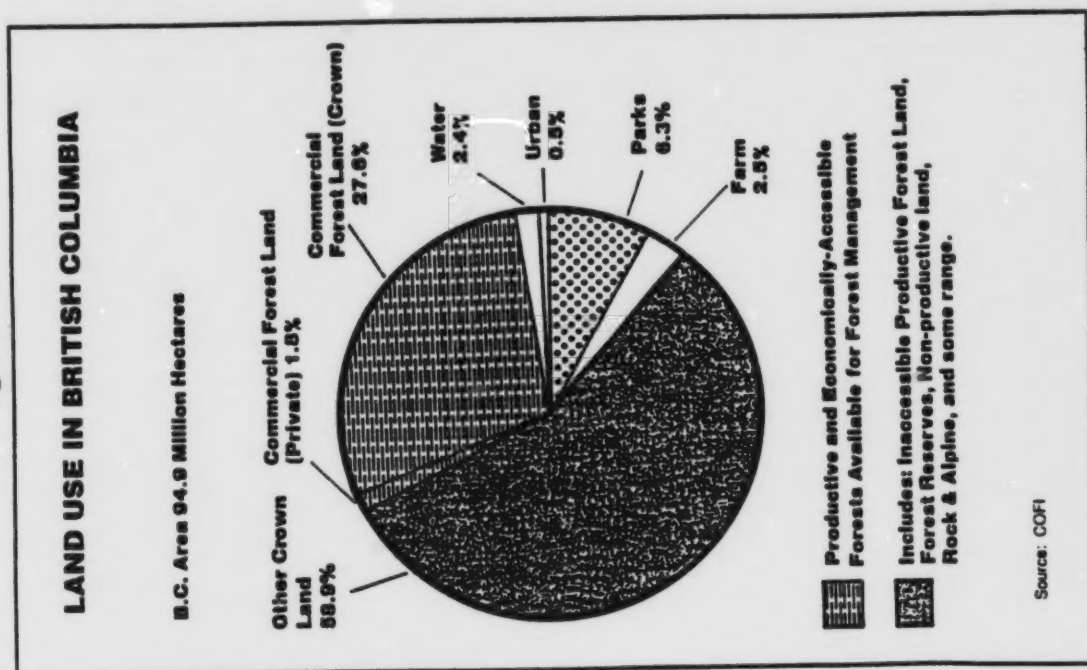


Figure 2



The Crown portion of the provincial forest land base is managed by the Ministry of Forests on an allowable cut basis (discussed in Section 3.2) and is divided into two types of management units: Tree Farm Licence (TFL) areas and Timber Supply Areas (TSAs). As of 1987/88 there were 31 TFLs and 35 TSAs in the province. After deductions to the forest land base to respectively account for inoperable and very sensitive sites the net available forest land base amounts to 21.3 million hectares. (Source: 1984 Forest and Range Resource Analysis).

	TFLs	TSAs	
Number	31	35	
Forest Land Area (million ha.)	3.7	39.5	
Available, Suitable, Productive Forest Land (millions ha.)	2.6	18.6	Total = 21.3

Within the TSAs, Forest Licences (FLs) are the major harvesting authority, with an actual cut of 42,148,000 cubic metres in 1987/88. Of the provincial Allowable Annual Cut in 1987/88, FLs accounted for 57%, TFLs 25%, Timber Sale Licences (including small business sales) 8.7%, Woodlot Licences 0.7%, and Pulpwood Agreements 0.6%.

Table 1: Distribution of Provincial AAC and Harvest 1987/88
(Source: Ministry of Forests Annual Report 1987/88)

Tenure	AAC m ³	Percent	Harvest m ³
TFL	18,422,000	25.3	14,944,000
FL (incl. TSHL)	41,445,000	56.8	44,023,000
TSL	6,319,000	8.7	10,720,000
Woodlot licences	472,000	0.7	427,000
Pulpwood Agreements	452,000	0.6	0
Special Licences	1,485,000	2.0	1,712,000
Forest Service Reserve	4,338,000	5.9	875,000
Sub Total	72,933,000	100	72,701,000
Timber Licences	0	0	7,307,000
Private Lands	0	0	8,707,000
Federal Land & Indian Reserves	0	0	337,000
		TOTAL =	89,052,000





Over the past several years there has been an increase in the number of Woodlot Licences and small business sales to enable the small operator and private land owner to become more involved in the forest industry. The number of TFLs and FLs has remained relatively constant (Table 2).

Table 2: Number of Tenures held

All Regions		1980/81	1981/82	1982/83	1983/84	1984/85	1985/86	1986/87	1987/88
Tenure									
TFL		34	34	33	33	32	30	31	31
Woodlot Licence		37	37	35	35	96	156	315	392
TSHL		272	272	7	6	6	4	3	1
FL		0	0	177	173	169	170	171	187
TSL (major)		625	625	221	208	196	195	190	127
TSL (minor), SBFEP *		710	791	988	1741	1723	1511	1916	1466
Other		2757	2662	243	15664	12469	9318	2907	661
Sub Total		4435	4421	1704	17860	14691	11384	5533	2865
Special Licences:									
FL (e.g. deciduous and Lot 7741 Military Reserve)		0	0	0	1	2	16	14	13
TSL (major) TSL (minor)									
TSL (SBFEP)		0	0	3	0	0	9	231	5
not part of AAC									
TOTAL		4435	4421	1707	17861	14693	11409	5778	2883

Notes: Other includes salvage sales, cash sales, free use permits - licences issued within Forest Service Reserve.

* SBFEP presently (1989/90) accounts for approximately 13% of the Provincial AAC and 15% of the harvest.

Source: Ministry of Forests Annual Reports

2.2 History of Tenure Development

2.2.1 Evolution of Forest Tenure Systems in B.C.

The history of forest legislation and tenure in British Columbia is rather complex, reflecting changes in public needs, demand for wood products, new technology and political vision. A summary of the course of change is provided in Table 3.

For more than a century, evolution in tenure has accommodated industrial development and contemporary public objectives. As markets have increased demands for timber, as the technology for utilizing it has advanced, and as successive governments have redefined public goals, tenure policy has undergone continuous revision.

Certain tenets have developed and become fundamental to our tenure system. These have usually been introduced after a process of introspection such as has been provided by the four Royal Commissions on forestry held since 1910.

From these have emerged a strong conviction that forest land should be retained in Crown ownership but that the development of the timber resources is best done by the private sector through rights granted within a variety of tenure forms.

The evolutionary process has developed this variety of tenure forms to a point where the tenures are able to be used to manipulate the industry to provide an impressive array of services for the general public good. Tenure obligations are, however, subject to normal market forces. They represent a cost to the licensee and must be accounted for. If they render the enterprise unprofitable the economic laws of equilibrium dictate that the conditions must either be relaxed or the licensee must relinquish his right with its attendant obligations.

The tenure system must now attend to new public aspirations. Obligations toward resource values other than timber, to which the tenure holder has no rights, must be passed on to the licensee, while still allowing his enterprise to be profitable. The system must also provide encouragement for innovative product development to diversify and deepen the province's involvement in the manufacturing process.





TABLE 3

SUMMARY OF THE EVOLUTION OF FOREST TENURES IN BRITISH COLUMBIA

<u>Date</u>	<u>Background and Government Intent</u>	<u>Legislative Action</u>	<u>Effect</u>
Pre 1865	Colonial status. Emphasis on settlement of an "empty land". Very little infrastructure, few market opportunities. Timbered land often regarded as a hindrance to development.	Crown grant of full land title	Owners entitled to full use of the land and its timber in perpetuity.
1865 - 1884	Major period of settlement in the Province. Railways being built to build links. The principle of retaining Crown ownership of the land when conferring timber rights was adopted.	Land Ordinance - 1865. Old Temporary Tenures issued.	Established timber rights on Crown land without alienating title to the land itself. Crown grants still commonplace. Major grants to the Dominion Crown to encourage development of railways and for inclusion in Indian Reserves.
1884 - 1907	Principle of Crown ownership of land reinforced. Export of unmanufactured logs became an issue. Government wished to encourage but control industrial development. Concept of generating revenue from Crown timber introduced.	Land Act amendments in 1884, 1887, 1888 and 1896	Issuance of Crown grants restricted. Prohibition of grants of land which were "chiefly valuable for timber". Royalty system to provide return to Crown of forest values. Timber exports restricted export of logs from Crown lands and from lands granted after 1906. (Allowed only with exemption order).
1907 - 1912	Review of forest tenures and their administration. Review of methods of generating Crown revenue from the timber being sold through tenure arrangements.	Forest Act - 1912	B.C. Forest Service established. Provincial forest reserves established. Timber Sale Licence (TSL) system introduced area-based competitive sales, performance deposits, and a minimum timber selling price based on an appraisal of its fair market value - stumpage. Report on the state of the Province's forest resources prepared by Chief Justice Sloan (1945). Introduced the concept of "sustained yield" forest management and advocated the establishment of area-based long term forest management licences as a means of encouraging sound forest management parallel with the encouragement of manufacturing facilities.
1912 - 1947	Retention of Crown ownership became firmly entrenched, as did the system to generate Crown revenue through competitive bidding for wood and the payment of stumpage. TSLs were the main tenure vehicle but Pulp Licences and Pulpwood Timber Sale Licences also introduced. Dawning of the realization that timber was not a limitless resource and that a security of wood supply was an asset that could leverage considerable capital investment.	Public Inquiries Act	



<u>Date</u>	<u>Background and Government Intent</u>	<u>Legislative Action</u>	<u>Effect</u>
1947	Report of the Sloan Royal Commission	Forest Act Amendments	Creation of Public Sustained Yield Units (PSYUs), Tree Farm Licences (TFLs) and Farm Woodlot Licences.
1951	The benefits of managing the resource for sustained yield were understood but there was no mechanism for encouraging this on private lands. Sustained yield was seen to provide a measure of industrial and community stability.	Taxation Act Amendment	Provision for "taxation tree farm" status where owner of private forest land could dedicate the land to productive sustained yield forestry in return for property tax relief.
1953	After a period of consolidation of tenures and purchases by larger corporations of licences held by smaller enterprises, there arose a concern for the continued well-being of smaller enterprises.	T.F.L. Contractor Clause	TFL documents require the licensee to provide an opportunity to harvest a stated proportion of the harvest. Some stated 30%, some 50% and some escaped the clause.
1954 - 1960	A finite wood supply could not satisfy all companies who aspired for more timber volumes. Bidding "wars" ensued. There was a need to introduce some much needed stability, to protect substantial investments and to allay concerns of affected communities. The second Sloan Royal Commission reported in 1956 on the Forest Resources of British Columbia.	Forest Act Amendments	TFLs confirmed as appropriate forest tenure. Concept of "quota" introduced and allocation of timber within PSYU's was largely limited to those companies with established records as licensees.
1961 - 1978	The quota system led to a considerable consolidation of tenure through purchase. The interior pulp industry developed based upon a wood supply furnished by chips residue from sawmills. This in turn led to utilization of lower quality, smaller log sizes. Allowable annual cuts increased. There was an explosive increase in forest exploitation during these years leading to widespread public concern about the long term well-being of the forest resources. The public demanded more consultation in the land use decisions being made.	Forest Act Amendments Public Inquiries Act	Volume-based Timber Sale Harvesting Licences were introduced as a new tenure in PSYUs. Greater degree of stewardship required of licensees and commitment to operate a wood processing facility. In 1975, the Province appointed a Royal Commission on Forest Resources to inquire and report on timber rights and forest policy.



<u>Date</u>	<u>Background and Government Intent</u>	<u>Legislative Action</u>	<u>Effect</u>
1978	Following the report of the Pearce Royal Commission in 1976, the Forest Policy Advisory Committee prepared new Acts based in large part on the Commission's findings and recommendations.	Forest Act, Range Act & Ministry of Forests Act.	Major changes included introduction of Woodlot Licence, Pulpwood Agreement and Forest Licence as new tenures replacing equivalent older tenures with new conditions. TFLs, while imperfect, represented the best examples of forest management in B.C. "Evergreen" clause allowing regular renewal of licences. Re-introduction of competitive bidding for wood and new opportunities for small businesses to enter the timber supply chain. Timber Supply Areas (TSAs) replaced the PSYUs. Incentives for conducting intensive forest management to increase yield. Formal recognition of forest values other than timber and requirements that they be considered in planning and operating licences.
1987 - 1989	A countervailing duty suit by the U.S. Government resulted in a pre-emptive 15% export duty imposed on all Canadian lumber being shipped to the U.S. Provinces were given the opportunity to make adjustments to stumpage systems to collect an equivalent amount at source. There was also a call to simplify a complex stumpage appraisal system.	Forest Act Amendment	The Comparative Value Timber Pricing System replaced the Residual Value System for stumpage appraisals.
	A shift occurred in government policy to place greater responsibility for returning logged forest land to forest production on the shoulders of industry.	Forest Act Amendment	Major licensees (TFLs and FLs) responsible for cost of reforestation and basic forestry. "Letters of Understanding" signed by the Forest Service and some licensees, giving companies responsibility for conducting sound management with minimal interference by Forest Service.



Date

1987-
1989

Background and Government Intent

A long term goal to make 25 percent of the AAC in the province available to small businesses was stimulated by success of the Small Business Program. Independent reports pointed to the need to encourage a "value-added" industry. To feed the Small Business Program, timber rights would have to be retrieved from major tenure holders.

Legislative Action

Forest Act
Amendment

Effect

5% of AAC on each TFL and FL was retrieved over a 2-year period, and allocated to the Small Business Forest Enterprise Program. New arrangements to encourage value-added industry using the leverage of allocation of timber rights for a period up to 10 years.

1989

Believing that TFLs provided the best means of ensuring responsible forest management, the province encouraged applications and expressions of interest by the industry for new TFLs. Considerable vocal opposition ensued, with the public perceiving the move to be a "land giveaway" to private enterprise.

Minister held
public meetings.

Moratorium placed on processing of new TFLs or additions to existing ones.

Growing concerns about a multitude of forest related issues reached unprecedented levels. A need arose for an impartial body to advise the government on these issues.

Permanent Forest
Resources
Commission
Appointed.

2.2.2 Impact of Royal Commissions on Tenure Evolution

Royal Commissions have inquired into forest policy on four occasions in British Columbia. Their reports were published in the following years:

1910: Fulton Report
 1945: Sloan Report
 1956: Sloan Report
 1976: Pearse Report

Each report resulted in significant changes as the province crossed new thresholds in tenure arrangements. Each report was instrumental in major forest legislation, not least of which are the current Forest Act, Ministry of Forests Act, and Range Act produced in 1979.

The 1910 Fulton Report introduced or endorsed many concepts which are still relevant today. Crown ownership of forest land was entrenched in policy, the Forest Service was established to protect and manage the forest and a Forest Act was proclaimed to control the use of the forest. Tenure management became more orderly with the establishment of Forest Reserves (the precursors of our modern Timber Supply Areas), timber rights were allocated by competitive bidding process through Timber Sale Licences - a form of tenure still in use - and minimum prices (stumpage) for timber were set by an evaluation process. The first Forest Act of 1912 embodied these concepts and this formed the legislative backdrop for a period of steady growth of the forest industry and gradual development of the province. Approximately 4.8 million m³ of timber was cut from Crown forests in B.C. in 1915. By 1940 the cut had reached 17.4 million m³, with most of the increase occurring on the Coast. The Interior during this time contributed about 15% of the cut.

In 1945, the first Sloan Report was tabled and led to amendments to the Forest Act in 1947. The Act now provided a basis for sustained yield management with the Forest Service administering the Forest Reserves as Public Sustained Yield Units (PSYU's) and larger corporations being invited to manage new area-based tenures called Forest Management Licences (the name was later changed to Tree Farm Licences). Chief Justice Sloan expressed concern for the prospects of stabilizing the forest industry with a continuity of supply or raw material and recommended that Crown timber be utilized for this purpose. He observed:

** The allocation or reserve of Crown timber for units of industry would serve two purposes: First, it would enable the operator to maintain production from the cut of mature Crown timber during the period necessary to restock his*



own land; secondly, the combined area of the private and Crown acreage should, on the second rotation, produce enough timber on a sustained-yield basis to maintain production of the unit in perpetuity - perhaps not at the peak of capacity, but sufficient to ensure a profitable operation with consequent benefit to those communities dependent upon the permanence of the industry."

In 1956, the second Sloan Report was tabled. The Royal Commission was struck in accordance with a recommendation to that effect in the previous report and not as a need to address any specific problem or situation that had arisen in the province. Nevertheless, it was timely as it allowed the commission to review the progress toward sustained yield management. There was considerable debate about Forest Management Licences with most division of opinion centred on the principle of Crown timber being available to all through competitive bid. Chief Justice Sloan appears to have been satisfied that *"the ownership and management of forest lands is an enterprise most suitable, measured by efficiency and satisfaction of social responsibilities, for the private citizen and private company, subject to general Government control"*.

He affirmed the underlying principle of the Forest Management Licence but made recommendations for administrative changes the chief of which was to reduce the term of the Licence to 21 years. Some licences had been issued in perpetuity up until that time. In the decade that elapsed between the two Sloan Reports the Province's cut had virtually doubled to 28.7 million m³ in 1955. More significantly, the interior cut had quadrupled from 2.7 million to 10.2 million. This trend continued and by 1972 the total forest harvest in B.C. had reached 55.6 million m³ and for the first time more than half of the volume was logged in the Interior.

In 1976, the Pearse Royal Commission reported on Timber Rights and Forest Policy in British Columbia. This report was published against a backdrop of public concern about the sustainability of the resource, the efforts being placed in restocking logged-over areas, increasing corporate concentration and provision for the well-being of other resource values.

The report again endorsed the concepts embodied in the Tree Farm Licence form of tenure but recommended some administrative restructuring of several major tenure forms to allow for smoother succession and renewal of licences. The Forest Act proclaimed in 1979 embodied these recommendations. In addition there was provision to re-introduce competition in the allocation of timber while at the same time making timber volume available to small businesses and new entrants in the field.

¹. Report of the Commissioner relating to The Forest Resources of British Columbia, 1945 (P. 144).



Out of this grew the Small Business Forest Enterprise Program.

A provision to encourage industrial responsibility for intensive forestry yield-enhancing practices was included. The Act also reflected a new awareness of forest values other than timber and provided new avenues for public participation in the timber allocation and planning process.

The Forest Act of 1979 was accompanied by a Ministry of Forests Act and a Range Act. The latter have remained essentially intact but several major amendments have been made to the Forest Act over the intervening decade. The Small Business Forest Enterprise Program has been expanded at the expense of existing licensees who were required to surrender five percent of their Allowable Annual Cuts. Closely linked to this, special provisions to encourage manufacture of value-added products have been contrived within the timber allocation system.

Greater responsibility including bearing of the financial burden for basic forestry (regeneration and nurturing of young crops) was imposed on major licensees. Not least, a new stumpage system was introduced to capture greater revenue for the Crown.

2.3 Issues Surrounding the Present Tenure System

2.3.1 Public Concerns & Distrust

It is probably a fair statement that in British Columbia the state of the province's forests has assumed the position of greatest public environmental attention. Reports in the media and expressions at public debates show that there is an air of public distrust and a general lack of confidence in tenure forms and their administration. Some of the elements contributing to this distrust are:

- Many tenure forms are seen to be designed for the extraction of old growth only, not production of new forests or other resource values. Tree Farm Licences have been labelled as legalized land grabs.
- There is conflict between the forest management horizon (60-100 years), short term rights (up to 25 years), and the political horizon (1 to 4 years).
- Public and government priorities are in a rapid state of change. Environmental issues are becoming articles of faith.



- There is a clear big city versus small town division appearing. Large urban centre priorities are becoming preservationist while smaller resource-dependent centres still retain priorities of jobs and local forest-dependent income levels.
- The notion that B.C.'s forests are being used for short term profits by the forest industry with little regard for the future.
- There is mounting concern that the provincial forest inventory is inflated and that its physical level is significantly less than represented. There is further concern that too little current field data exist as to the actual growth rates of immature forests and the actual status of the hardwood resource in the province.
- Because of the above and the theoretical nature of the Allowable Annual Cut calculation there is great concern that AAC levels are set too high and this is perceived to be causing extensive over-cutting in the province.
- Suspicion that the Forest Service is somehow in partnership with the forest industry and is condoning waste, bad forestry practices and mismanagement. Environmental protection is perceived to be low down on the Forest Service's priorities.
- The Forest Service seems to be concerned only with regular harvest of trees and cares little for the other resource values in our forests.
- Survey of all Districts showed that 87% of issues which would be a matter of public attention would be resolved. The remaining 13% would become provincial issues and would possibly attract media attention. A problem is that this 13% are extrapolated in the public's eye as being representative of the situation throughout the province.
- 86% of B.C. residents believe that industry causes a great deal or some damage to the Forest Environment (Environics poll, 1989).
- 82% of B.C. residents feel that there is a serious or very serious problem with too few trees replanted.
- 57% feel that there is too little government regulation of the forest industry today.



Specific topics of concern:

- Clearcutting - is equated with devastation, moonscapes, soil degradation, erosion, and destruction of wildlife habitat.
- Old-growth - There are connections made between the cutting of old-growth forests and the devastation of tropical rain forests with reductions of biological diversity.
- Slashburning - The smoke pollution from slashburning does not seem to be as great a concern as the aesthetic impact of blackened hillsides. There is the assumption that all soil is exposed to erosion and nutrients are destroyed. Recently, there has been attention paid to this practice as a contributor to global warming.
- Pesticide & - While these products are accepted (perhaps reluctantly) as being part of the agriculture process to yield sufficient quantities of food, there is a low level of public tolerance to the use of these chemicals in forestry.
- Herbicide Use
- Stumpage - Concern for this issue appears to have moderated although there is still a lingering feeling that the government charges too little for the timber and that the public purse suffers from the lack of competition in most of our tenure system.
- Structure - Concern that the Forest Service is too small to properly oversee the companies and to properly protect the forests from fires (e.g. 1986).

2.3.2 The Forest Industry's Concerns for the Tenure System

The forest industry's *raison d'être* is to convert a timber resource into a variety of products for sale in the market. Like any other industrial activity it exists within a number of straightforward economic laws:

- It must have a regular and assured access to supply of its raw materials;
- B.C.'s industry must remain competitive with those from other places;



- Wood as a raw material must compete with other materials such as steel, cement and plastics;
- It must return a profit.

The industry is concerned that some recent changes within the tenure system are a threat to its long term ability to satisfy these conditions. The following are an expression of some of its concerns:

- Agreements with the government are no longer inviolate. As witness to this there is the recent government retrieval of cutting rights. As soon as confidence in the agreement for wood supply is eroded, the tenure's efficacy in raising capital is diminished.
- Forest companies have been offered very little incentive to practice good forest management. Except on area-based tenures there is no provision to ensure that the company carrying out intensive forest management work will enjoy the fruits of its labours. A formula for reward by increasing the Allowable Annual Cut exists but these increases may be nullified when the Forest Service decides to reduce the overall timber allocation in a Timber Supply Area.
- The industry feels that both levels of government capitulated to the United States in 1986 when that country attempted to impose countervailing duties on Canadian softwood lumber imports. A pre-emptive 15% export duty by Canada led to a memorandum of understanding between the two countries. Within that, B.C. imposed much higher stumpage rates and now must ensure that virtually every adjustment made to the tenure system does not infringe the memorandum. Industry is concerned that B.C.'s forest policy is now subject to undue influence by their chief competitors through Washington, D.C.
- The industry is frustrated and confused with the multitude of land use issues which leave them caught in the middle. Long term security of wood supply is being threatened by a seemingly endless demand for areas to be set aside for wilderness, urban development, agriculture, parks and recreation areas. Another layer of uncertainty is provided by the many Indian land claims which have yet to be addressed. Companies find themselves in a position where they must assume the responsibility of defending areas within their geographical area of interest from being excised from the land base of the working forest. This is not an easy task - particularly when their motives are vulnerable to being labelled as self-interest or greed by their opponents.



- The industry has expressed concern about the inadequacies of the inventory of the Province's forest resources. They feel that, whereas we have a good understanding of the extent of old-growth timber in B.C. we have little knowledge of the extent and likely future behaviour of young stands. Although a 10-year programme to re-inventory the province's forest resources is now in its third year, the emphasis has been on re-classifying the forest. Very little work has been done to help predict the growth of the upcoming crops of second growth trees. Forest inventories do make provision for values other than timber but these are limited to an expression of the extent they affect the rate at which timber may be harvested. There is little known, it seems, of the physical extent of other values - particularly fish and wildlife. This affects the ability of companies to practice forestry with due regard to all forest values. Because little is known about the wildlife populations and because of public pressure, the authorities tend to assume a posture exaggerated in its conservatism.

2.3.3 Changing Priorities in B.C.'s Tenure System

The Government

The Ministry of Forests has as its mandate, the purpose and function to:

- a) Encourage maximum productivity of the forest and range resources of the Province.
- b) Manage, protect and conserve the forest and range resources with particular attention to the economic and social benefits they can retain for the Province.
- c) Plan the use of forest and range resources so that the production of timber and forage, harvesting of timber, grazing of livestock and the realization of fisheries, wildlife, water, outdoor recreation and other natural resource values are co-ordinated and integrated.
- d) Encourage a vigorous, efficient and world-competitive timber processing industry in the province.
- e) Assert the financial interests of the Crown.



This mandate has allowed the Forest Service some flexibility in attending to different priorities, although the wording is heavily weighted in favour of the economic issues. In recent times it has become increasingly frustrating for the Forest Service to adhere to this economic mandate given the prevailing climate of public concern with broader issues.

Tenure Issuance Practices

When the Ministry of Forests awards cutting rights under one of the major tenure forms the Minister is required by the Forest Act to evaluate each application with particular attention to five main attributes, namely:

- a) employment opportunities and other social benefits
- b) provision for management and utilization of Crown timber
- c) furthering the development objectives of the Crown
- d) provision for meeting the standards for environmental quality and the management of water, fisheries and wildlife resources.
- e) contributing to Crown revenues.

No priorities are attached to these attributes and so there is latitude for the Minister to consider any one attribute to outweigh the others or even deficiencies in any of the factors when evaluating an application. In recent memory, major tenures have been awarded to applicants with quite diverse propositions. For example:

- TFL #42 - provided a unique opportunity to create employment opportunities and other social benefits among the Stuart-Trembleur Indian Band and surrounding communities.
- TFL #43 - provided for management and utilization of hardwood stands which would have otherwise been ignored.
- FL#A30526 provided for utilization of dense, small diameter, stagnant lodgepole pine stands which had been hitherto considered as uneconomical. The logged areas are to be reforested and the trees nurtured into fully productive stands.
- PA #16 - provided for utilization of small diameter conifers and aspen logs, not otherwise useable by the existing forest industry.



Small Business Forest Enterprise Program

During the last ten years there has been a shift toward providing greater opportunity to small business operations and to encourage competitive bidding. This started with the Small Business Enterprise Program after the proclamation of the Forest Act in 1979 when the Forest Service began to sell short-term Timber Sale Licences to the highest bidder eligible as a Small Business operator. This generally successful scheme has recently been superseded by the Small Business Forest Enterprise Program, which augments the previous program with a new small business category which includes secondary manufacturing plants or "value-added" facilities. By limiting applications to this category, the Forest Service has been able to award Timber Sale Licences to enterprises which promise to provide "value-added" manufacturing in the province.

These examples show the current tenure system does provide a considerable degree of flexibility. The Government has been able to use the lure of timber cutting rights as leverage to achieve a variety of desired objectives. The margin between the value of the rights, and the costs imposed by the obligations pertinent to the rights, represents the incentive for the tenure holder.

The Public

The new global awareness and concern for a host of environmental issues seems, in British Columbia at least, to have been focused on the forest industry. The concerns are discussed elsewhere, but it is worth noting there has been a change in mood over the last ten years. A decade ago the forest industry was still seen as the main instrument to bring about the economic development of the province. If other forest resource values such as access to new hunting, fishing and recreation opportunities were also developed, this was considered a bonus. Slowly the other forest resource uses gained value, if not in an economic sense, at least in a spiritual sense. No longer was it acceptable to achieve greater forest development and exploitation without regard to the effects on other resource values, aesthetics, and long term prospects for sustaining the enterprises dependent on these resources.

With the economic climate that now prevails, while the employment situation is relatively benign, there is less concern voiced for the maintenance of the well-being of the industry and its employment base. Instead there is a strong voice for preservation of specific areas slated for forestry activity and for remaining old-growth forests in general.



Notwithstanding this attitude, there is a latent concern for the well-being of forestry-dependent communities - a concern which erupts with any threat of a mill closure. This implies that there could again be a re-shuffle of priorities in the public's eye, if the industry enters a recession or loses its competitive edge in the world's markets.

2.3.4 Perceptions of Resource Values

Perceptions of value are changing. As noted, generally only timber can be valued precisely because it is subject to market forces. Other resources such as wildlife, water and aesthetics are difficult to value. Valuation techniques, other than foregone timber values, are often not available and other resource inventory data are often deficient or absent. Valuation of non-forest resources has tended to depend on emotional appeal rather than factual appraisal. There is a major deficiency of both factual data and valuation techniques which has prevented rational analysis. This has been further exacerbated by a major resource management gap and aggravated by an inadequate inventory of wildlife populations in British Columbia.

2.3.5 Fragmented Government Priorities

The forest sector is the paramount economic driver of the province. Much is earned, much is spent, much is taxed.

Government actions all impinge on the forest sector but motives and resultant effects are very mixed and are often in conflict:

- The Ministry of Finance attempts to maximize the net resource revenue stream. This implies high levels of industrial activity and high rates of charges combined with minimum cost.
- Habitat protection and enhancement through the Ministry of Environment implies government spending and impingement on the net taxable base which is contrary to the goals of the Ministry of Finance.
- Creation of parks removes a resource from revenue generation through the forest sector.
- The Ministry of Forests now encourages sustainable forest development which likewise implies heavy spending directly or,



indirectly, by licensees. Again this is contrary to Finance Ministry priorities.

- Community stability often directly conflicts with non-industrial forest amenities and aesthetics. This creates priority conflicts between Forests, Finance, Municipal Affairs and Tourism.

Many more examples exist. The fact is that the matrix is very scrambled in terms of the priorities of all governments, federal, provincial and municipal, as well as the array of private self-interest groups, including industry, also pursuing their own priorities. It has been said that everyone who tries to influence public policy does so for a motive. The whole complex array of interactions in the end, centres on the forest tenure structure.

Finally, the fact of the comprehensive aboriginal land claims issue provides the broadest possible array of priority conflicts because it centres on the ownership of the land base itself.

2.3.6 Aboriginal Land Claims

Introduction

The allocation of resources by colonial and post-colonial governments was designed to encourage population expansion to "fill an empty land". Contrary to this assumed need, the land was not "empty". It has been occupied for millennia by aboriginal peoples.

Consequently, overlying all facets of land and resource tenure in British Columbia, there is the issue of aboriginal land claims.

The issue of the historic claims of these peoples to the land over which successive governments have allocated resources to third parties is vital to any discussion of forest tenures. The land claims issue is complex and on-going and can only be outlined here.

The claims issue is divided into two broad categories. "Specific claims" which relate to grievances regarding previous government's administration of Indian reserve lands and assets. In British Columbia most of the specific claims result from disputes over what is known as the "cut off" lands. These were lands removed or "cut off" from 34 reserves belonging to 22 bands in 1919 and 1920 without consent of the bands. Negotiations since the mid 1970's have resulted in compensation or restoration of many



of these lands and resolution progresses on the remainder. They are not a major issue in regard to over-all resource tenure and are not discussed further.

The second category, "comprehensive claims" relates to the actual ownership and control of the whole provincial land base itself. Comprehensive claims embrace the concept of aboriginal title, which is linked to the traditional use and occupancy (for hunting, trapping, fishing, etc.) of these lands by aboriginal peoples. The comprehensive claims have profound implications for all resource tenures.

The Claims Issue

The comprehensive claims arise from the continuous expansion of non-aboriginal use and occupation of lands represented by the claims. This process has proceeded for a long period of time and continues to the present without treaties, extinguishment or compensation (Cassidy and Dale). Hence, the aboriginal peoples seek a just settlement based on the acknowledgment that this situation requires redress.

For the most part, the intent is stated not to exclude other users nor to exercise full sovereignty over all the claimed lands. The intent rather is a fair settlement for present and anticipated comprehensive claims.

This unresolved situation clouds not only current resource ownership and allocation issues and access rights but extends to the scope of all future settlements as they might impact on all natural resources.

History

The land claims issue is of long standing. Efforts to assert aboriginal rights and title date from before Confederation. It has been through various phases from civil disobedience to legal process to negotiation and partial settlement, but remains unresolved. Even the constitutional responsibilities are in dispute. As the province increasingly filled with newcomers and industrial occupancy proceeded, the issue was raised with increasing urgency and frequency. From 1950 it has accelerated and has been pursued continuously and in stronger and more comprehensive terms.



Extent

At present virtually all of British Columbia's land area and adjacent coastal waters are subject to land claims. The following map illustrates the extent and complexity of the claims. There are many overlaps and disputed areas between native groups and at least seven more claims are expected in addition to those illustrated. Some claims extend into the Yukon and Alberta, a reflection that aboriginal homelands understandably extend beyond political boundaries.

Implications

In addition to financial compensation a range of alternative avenues for settlement of the claims issue have been proposed but these are beyond the scope of this paper.

For the purposes of this report, the main implications are probably best phrased as questions:

- Who will get the resource revenue and who will bear the responsibility and costs for use and management? The forest industry is the largest employer of Native peoples in B.C. Thus there are economic implications.
- Who will govern the planning, review and regulation of resource management? This is the political implication.
- Who will determine the environmental well-being of the resource? This is the environmental implication.

The fact is that the land claims issue is unresolved and on-going. This profoundly affects the entire concept of resource tenure.

(This portion of the paper draws on "After Native Claims" by Cassidy and Dale and this is acknowledged here.)





3.0 REVIEW OF TENURE FORMS IN BRITISH COLUMBIA

3.1 Intents and Ingredients

Each tenure arrangement which confers a specific property right carries with it a collection of conditions and responsibilities. Generally, the more economically powerful property rights command higher and more expensive obligations from the tenure holder. The forest tenure system in B.C. is well developed and contains a healthy variety of incentives and obligations.

Exclusivity of Rights: Each tenure provides a measure of exclusivity of right to a timber resource. Once awarded the right, the tenure holder is assured that he will have access to the designated timber values and the right to harvest them within the term of the licence and on condition that he fulfils his other obligations. Tree Farm Licences and Timber Sale Licences give exclusive right to all the mature timber in a designated area - with the exception of timber which must be left standing to protect other resource values. Forest Licences confer an exclusive right to harvest a specified volume of mature timber each year from within a Timber Supply Area. Although, in practice, Forest Licensees operate within "Areas of Interest", they have no exclusive rights to areas of timber.

Term: The life of the tenure combined with exclusivity and the value of the timber resource governs the economic leverage which can be secured by the tenure. Obviously an investor feels more comfortable that an enterprise will not fail for want of timber supply if there is assurance of a non-competitive right to timber of adequate quality and volume for the time required to amortize his investment. Larger capital investments have in the past required longer amortization periods. Often award of Tree Farm Licences and Pulpwood Agreements were conditional upon the company building an appurtenant timber processing facility. At the other end of the scale, the term may be quite short - perhaps one year or just sufficient time to cut the designated timber and leave the area. In these cases the term carries little economic significance other than to assure the licensee that he has a known period of time in which to complete his harvest and other obligations.

Transferability: Tenure forms are conditionally transferable. The transaction must be approved by the Minister of Forests and may be accompanied by changes in the nature of the rights. In the case of TFLs and FLs, 5% of the AAC is forfeited to the Crown upon an approved transfer of the right from one company to another. The government does not sanction the tenure right as an asset but, in practice, long-term renewable tenures in B.C. have been considered transferrable, bankable financial assets.



Financial Obligations: The Crown recovers its financial interest in the forest resource in three ways: Bonus bid at the time of award of the licence; annual rental of the land base supporting the timber for which the right is held, and; stumpage (or royalty) charges for the timber as it is cut. Bonus bids may be offered by prospective bidders as an added inducement to the government to select one company's proposal over another. For short-term tenures, such as some Timber Sale Licences offered under the Small Business Forest Enterprise Program, award is based solely on the highest bonus bid by an eligible bidder. For longer term Forest Licences, the bonus bid is considered in context with the value of other benefits such as employment, plant and other non-monetary factors being tendered by the proposer. Likewise with the so-called "value-added" licences, the bonus offered must be appraised along with the calculation of value-added benefits and the extent of employment creation forecasts.

Rental charges are fixed amounts payable annually and vary only by the type of tenure and amount of AAC. They represent the Crown's interest in the land value occupied by the timber and, because they are scheduled in the Forest Act, they are a relatively constant charge. Royalty charges seldom apply any more: there remain some Old Temporary Tenures which are still subject to a fixed royalty charge. All the remaining timber harvested from Crown lands is subject to stumpage charges, and these vary between tenures, from place to place and from one month to the next. They represent the Crown's interest in the timber. Forest Service officials appraise these stands of timber to determine their relative value and calculate the stumpage charge to be paid by the licence holder.

Forest Development, Management and Silviculture Obligations: Short term licences, those with less than 5 years term, carry few obligations. In many cases the planning has been done by the local Forest Service district offices, the main roads are already in place, and the Forest Service assumes responsibility for planting and nurturing the new forest crop after the licensee has cut his timber. Longer-term licences carry with them heavier responsibilities in this category. The licensee must prepare a management and working plan and a 5-year development plan. In some cases the Forest Service also requires a 20-year harvesting plan. These plans must be approved by the Forest Service and are to be prepared in consultation with other Ministries or agencies and the public in order to ensure other forest values are accommodated. Pre-harvest silviculture prescriptions must be made and, following harvest, they must be carried out. This includes the collection of suitable tree seed; arranging for the seedlings to be raised in a nursery and transplanted to the logged area; preparation of the ground for planting; and protecting the seedlings from competition by weeds and brush until the new crop is free to grow unattended. While this is an obligation of considerable magnitude and the costs are borne by the licensee, they are taken into account when the stumpage charges are calculated by the Forest Service.



Other Covenants and Responsibilities: In return for the exclusive right to acquire timber, particularly for those tenures granted for longer periods of time, the licensee may be required to build and operate a timber processing facility of a certain size in a designated location. Usually this requirement will have arisen from a covenant to build such a facility set out in the company's original proposal or in the original advertised prospectus for the licence. In this way the government can strongly influence the development of areas or regions of the province. In some circumstances the licensee may also be directed to offer wood chips produced from his sawmill to a specified pulp mill.

Conversely, the licence document may contain a clause requiring the licensee to not build a timber processing facility, but instead market the logs to companies who do have mills. In the past some sawmills have been constructed with the hope and speculation that sufficient wood supply would materialize to feed the mills. Once operating and offering an employment base such mills can exert political pressure on the Forest Service to provide them with timber - even when there are shortages. The Forest Service must have control over the number of mills and their productive capacity if they are to avoid over-allocation of wood supply.

A new responsibility has been shifted onto the shoulders of the forest tenure holder during the last few years - the responsibility for stewardship. An environmentally aware public has sought to impose an additional responsibility on the shareholders of the forest tenure holders. This public expects the tenure holder to behave in the forests and in the community as an environmentally responsible citizen. This perceived responsibility calls for action, attitudes and expenditures that extended far beyond normal contractual obligations in forest tenures.

Financial Compensation: Despite the many obligations embodied in various tenure forms there also exists a recognition by all governments that the arrangements are contractual and that unilateral change by governments of the extent of the property rights conferred is subject to financial compensation. Precedents exist for this, most notably withdrawal of timber rights for the establishment of the Pacific Rim Park and the South Morsey Island Park. Compensation has taken various forms such as compensation in kind (i.e. replacement of the timber rights removed), direct financial compensation or some combination. This principle of compensation will presumably extend into the future and contains unknown dimensions especially in terms of aboriginal land claims. In practice the process has been very complex, painfully long and highly contentious especially where several licence holders and different government levels are involved.



3.2 The Allowable Annual Cut (AAC)

The AAC is a forest management tool for regulating harvest of timber, usually with a view to achieving sustained yield. Over time, the term has mistakenly become synonymous with sustained yield. It is important that the difference be understood.

Foresters strive to mould the forests they manage into ones which have an even distribution of ages from newly planted seedlings to mature stands of trees ready for harvest. In this way, each year, a consistent volume of timber equivalent to one year's growth of trees can be cut and the area re-planted, to start the cycle once more. This situation, termed a "regulated" forest, may take centuries to achieve due to the long period of time it takes for timber to reach maturity.

Until recently, foresters in B.C. have used Hanzlik's ² formula to determine the AAC on managed forests. Hanzlik was an American forester who devised this method of regulating the cut with a view to maintaining a relatively constant rate of cut while prompting the forest toward a regulated state. It assumes that older stands will be harvested first. Indeed it functions on the basis of the liquidation of old growth forest.

In its simplest form, Hanzlik's formula divides the volume of mature timber by the number of years in a rotation age and adds the annual volume growth of immature stands to arrive at the AAC. In practice, adjustments must be made for losses from fire, breakage during logging and many other considerations which can range up to a third of the calculated allowable cut.

Hanzlik's formula has been surpassed since 1984 by the use of stand prediction modelling techniques. These methods rely on computer technology to predict what will happen to a forest over the long term - perhaps as many as five rotations. The model uses the forest inventory, complete with its constraints for protection of soils, water and other resource components. Growth characteristics of the species of trees which make up the forest are available to the model in the form of yield curves. A variety of assumptions can then be included in the modelling program, allowing for such considerations as regeneration delays, losses to fire and other natural causes, and the initial harvest volume.

². Hanzlik, E.J., (1922). Determination of the Allowable Cut on a Sustained Basis for Virgin American Forests. *Journal of Forestry* #20, pp 611-623.



The planner can then release the model to "grow" the forest, harvest a specified volume each year and plant a new stand of trees after the specified regeneration delay. This will give the planner an insight into the effects of the assumptions on the nature of the forest decades or centuries ahead. The ideal is to reach a regulated state for the forest. If the cut is too low, there will always be a preponderance of timber beyond the rotation age. If the cut is too high there will come a time when there is insufficient volume at rotation age to service the cut. The computer model can be given the freedom to make adjustments to the harvest level to ensure that the goal - a regulated forest - is attained.

Long Run Sustained Yield (LRSY) is a term used by foresters to describe the theoretical growth capacity of a unit of land to grow trees. It is usually expressed as a volume in m^3 per year, and represents the average increase in volume achieved per year over the rotation.

Factors which can influence LRSY

LRSY can decrease when:

- The inventory of the unit is re-evaluated and there is found to be less productive forest land (e.g. land alienation from forest production, and areas previously considered operable being reclassified as inoperable).
- The site productivity of any part of the unit is downgraded.
- Harvest constraints are placed on parts of the land (e.g. unstable soil).
- Regeneration delays increase.
- Harvesting standards are downgraded allowing timber volume to be wasted.
- Timber stands are allowed to stagnate due to overstocking or from competition by weeds.
- Rotation age is extended beyond the age which provides maximum volume recovery.

LRSY can increase through the converse of the first five factors listed above. In addition LRSY can increase when measures are taken to increase the yield of stands. This can be accomplished by the introduction of tree species or tree seed which will give faster growth, or by fertilizing or by reducing the competition from weeds or other unwanted tree species.



A word about the "falldown" effect is appropriate.

When we harvest a hectare of old-growth forest we may expect, for a coastal forest at least, to remove perhaps 700 cubic metres of merchantable wood. That hectare may have supported trees which had been growing for more than 300 years. It will be planted and in less than 100 years it will be ready for harvest once more but the trees will not be as large as they would have been after 300 years. The volume that is harvested may be 600 cubic metres. This falldown of volume is an effect of switching from virgin forest to second-growth managed forest, and is perhaps felt most strongly on the coast.

Many foresters believe that the falldown can be relieved by investment into intensive forestry aimed at increasing the LRSY. Without this, there will be an inevitable cut back of harvest volume in B.C.

3.3 Timber Supply Area Concept and Use

Timber Supply Areas were adopted as forest administrative units in 1979 with the proclamation of the Forest Act. They confirmed the concept propounded by the Pearse Royal Commission which stated:

"Prescribed harvesting limits serve a meaningful purpose only within the context of timber supply regions that serve manufacturing centres and communities. Insofar as public policy is to be directed toward supporting the income and employment base of forest dependent communities, yield controls must be designed to apply to the relevant timber supply areas."

Prior to this, the chief administrative unit had been the Public Sustained Yield Unit which had become unsuitable for the purpose of harvest control. In 1978 there were 95 PSYUs. These still exist for certain inventory purposes but the Forest Service now conducts administrative planning through 35 TSAs designed to take into account the location of major timber processing centres and their log supply patterns and transportation facilities.

The planning process at the TSA level is the heart of integrated resource management planning at the operational level. From it springs the allocation of timber harvest to the licensees and Small Business Forest Enterprise Program. It forms the instrument which converts provincial policies and regional priorities into resource conservation and allocation plans.

TSAs are further divided into supply blocks which may reflect rationally distinct supply units or may contain a distinct biological zone for planning purposes. They are important because their different attributes can be respected when timber supply forecasts are being prepared.



The TSA planning process evaluates several options which are run through the yield analysis harvest simulation models. A consultative approach is taken in choosing the management option which best suits the planning objectives and relevancy to a host of conditions prevailing in the TSA at the time.

The Chief Forester is responsible for setting the AAC level for the TSA. Harvest level options are part of the planning process and the Chief Forester will take into account such factors as: distribution of age classes in the forests; threats to the health of the forest - particularly from insect attacks, and, existing commitments to licence holders within the TSA. When the Chief Forester determines the AAC level he issues a rationale report which documents the descriptions of the forest land base, the management assumptions and the harvest schedule produced by the computer planning model.

The AAC represents a harvest level and is not a sustained yield volume which can be cut in perpetuity. Usually it provides a compromise between meeting a volume of timber committed to or expected by the licensees and adhering to a harvest level which will optimize the time it takes for the forest to reach a "normal" age class distribution.

Once the AAC has been set, the Forest Service allocates the TSA harvest according to share or quota. This is a pro-rata process but the Forest Service retains a proportion allocated to the Small Business Forest Enterprise Program for competitive sale to eligible bidders. These are sold at intervals throughout the year.

3.4 Tenure Forms in B.C. (refer to Appendix 1 for more details).

3.4.1 Tree Farm Licences and Forest Licences

TFLs and FLs are the dominant tenure forms in British Columbia, representing 82.1% of the annual cut and each form deserves a detailed description.

3.4.1.1 Tree Farm Licences

Tree Farm Licences provide exclusive timber harvesting rights and impose forest management and development responsibilities over a designated area base. The licence must be managed by a Registered Professional Forester.



TFLs have a 25 year term and are replaceable every 10 years for a new 25 year term ("evergreen clause"), unless the licence is non-replaceable. Because the offer of replacement may contain revised conditions, the government has an opportunity to impose new management conditions and responsibilities that reflect society's changing expectations and demands. If the licence holder refuses the new terms, the current licence is retained for the remaining 15 years with no further replacement right.

A Tree Farm Licensee is required to submit a Management and Working Plan (MWP) which is prepared by a Registered Professional Forester and is subject to approval by the Chief Forester. It is revised every 5 years. The Management and Working Plan includes an inventory of the forest and recreation resources, and, where available, an inventory of the fish and wildlife resources; a proposed allowable annual cut; proposals for developing environmentally sound timber harvesting operations; proposals for forest protection measures; silviculture objectives and standards; and any other information that the Chief Forester may require. Before a MWP can be submitted, it must first be reviewed by other resource agencies and the public and all comments must have been reasonably considered.

In addition to the MWP, the licensee is required to submit a Five-Year Development Plan specifying detailed harvesting, reforestation and road building plans for the 5-year period, with annual revisions. This plan is reviewed by other agencies and the public, and it is subject to approval from the Forest District manager.

Both the MWP and the Development Plan are statements of intent. They do not constitute a legal contract and while required by law, they are not binding in law. There are other documents which do constitute contracts: for example, cutting permits and road permits.

Prior to harvesting within any Crown tenure, a Pre-harvest Silviculture Prescription (PHSP) signed by a Registered Professional Forester is required for each cut block. The PHSP is submitted to the District Manager for approval and is subject to review by other agencies and the public. The PHSP prescribes the measures for ensuring the harvested area is satisfactorily reforested with trees of a desirable species, within a specified time, to ensure growth without excessive competition from weeds, brush and undesirable tree species.



The licensee must apply to the District Manager for Cutting Permits (CPs), which must be in harmony with the approved 5-year plans and the MWP. A cutting permit describes the area to be harvested, the area to be reserved from cutting, the minimum standard of utilization, and it includes the PHSP.

The licensee is obligated to annually cut within 50% and 150% of the AAC of the licence, and within 90% and 110% within a five year "cut control period". Failure to meet these limits can lead to imposition of financial penalties. If the actual cut exceeds the allowable cut, the difference will be debited against the next 5-year cut control period. If it falls short, the difference is forfeited and becomes available to the Forest Service as a volume available for sale to the Small Business Forest Enterprise Program. Also, on most TFLs at least 50% of the AAC must be logged by contractors.

The licensee pays for basic silviculture, and the cost is considered in the appraisal of costs when calculating the stumpage rate.

3.4.1.2 Forest Licences

Forest Licences bear similarities to TFLs, but there is a fundamental difference in that FLs are volume based, not area specific as are TFLs. They have a term of 15 years, replaceable every 5 years for subsequent 15 year terms unlike a 25-year term replaceable every 10 years on TFLs. Some FLs are not replaceable.

The FL document defines the AAC and usually does not specify a proportion of logging to be carried out by contract loggers. The licence is not required to be managed by a Registered Professional Forester, but its submitted plans require the signature of an R.P.F.

The MWP serves similar functions to that of a TFL, but is subject to approval by the Regional Manager who must ensure that it is in harmony with the TSA Plan. The TSA Plan is prepared by the Forest Service, and is subject to public review, and must be approved by the Chief Forester. The MWP does not require the licensee to conduct an inventory, prepare an AAC, nor adhere to as stringent protection measures as does a TFL. The TSA Plan assumes these responsibilities belong to the Forest Service.

FL holders must submit a Five-Year Development Plan, updated annually, as well as CPs, complete with PHSPs, in similar fashion to TFL holders. Likewise, FLs are responsible for basic silviculture costs.



3.4.2 Timber Sale Licence & Timber Licence

3.4.2.1 Timber Sale Licence

Timber Sale Licences come in two sizes: major and minor. TSLs (major) are volume based tenures and provide the holder the right to harvest a stated volume of timber per year, in unspecified parts of the TSA. TSLs that have an AAC greater than 10,000 m³ are managed by the licensee in accordance with a Management Working Plan, approved by the Forest Service. TSLs with an AAC of up to 10,000 m³ are managed by the Forest Service. TSLs (major) have a term of up to 10 years, and are replaceable at expiry for subsequent 10 year periods unless the licence is designated as non-replaceable. They are awarded, after advertising, by the Regional Managers to applicants whose proposals best meet the goals of the Ministry of Forests.

TSLs (minor) provide the licensee the right to harvest timber from a specific area. They may have a term of up to 10 years, but most are for only 1-2 years. These licences are sold through competition to the highest bidder and/or best proposal. They are non-replaceable and the licensee is only responsible for harvesting the area. The Forest Service is responsible for all management, major road development, protection, and reforestation activities. These tenures are offered through the Small Business Forest Enterprise Program only, and are generally sold by competitive monetary bid, to the highest eligible bidder. In some circumstances the Forest Service may sell a TSL (minor) directly without advertising or competition. This is not the preferred option but is used when it would not be sensible to advertise and invite tenders. Examples would be when timber at the fringe of an existing TSL should be cut or when timber must be salvaged from a remote location where only one operator is working.

3.4.2.2 Timber Licence

Timber Licences provide the licensee the right to harvest timber from a specific area, after which title to the land reverts to the Crown. Many licences have been incorporated into TFLs and as such become part of their AAC and must be harvested according to the TFL Management Working Plan and the Five Year Development Plan. These tenures are the unlogged remnants of the "Old



Temporary Tenures". This form of tenure is no longer offered by the Ministry of Forests. Eventually all TLs will have been harvested and they will cease to exist.

3.4.3 Pulpwood Agreement

Pulpwood Agreements oblige the owner of a timber processing facility to purchase raw material from all available sources within the Pulpwood Area at reasonable prices. The option to harvest timber can be used only if the full volume stated in the Pulpwood Agreement cannot be reasonably purchased. Pulpwood Agreement areas, like TFLs, have a term of 25 years, replaceable every 10 years for subsequent 25 years, unless the licence is not replaceable.

3.4.4 Special Licences & Permits

The Forest Service also issues a number of special licences and permits collectively called "Forest Use Permits" which include the following:

- Free Use Permits which may be issued to authorize the cutting of firewood for personal use; to mineral prospectors for timber to develop their claims and leases; and other uses.
- A Licence to Cut is issued to allow harvesting where the purchaser or occupier does not otherwise have the right to harvest Crown Timber.
- Christmas Tree Permit allows the permittee to grow and harvest Christmas trees.
- Special Use Permit allows a person to use Provincial Forest land for a forest-use related purpose; such as for log dumps or logging camps.
- Road Permit allows licensees the right to construct a road and to harvest timber from their road Right-of-Way; and to use and maintain a Forest Road.
- Cutting Permits allow a Licensee the right to harvest timber under a TFL, WL, FL, TL, and some TSL agreements.



3.4.5 Woodlot Licence

Woodlot Licences are very similar to TFLs but smaller. Any amount of private land or Indian reserve land can be included in the licence, but the Crown land portion may not exceed 400 ha. Procedures for awarding a woodlot licence start with advertising in all cases. Normally, proposals will be invited without bonus bids, and will be evaluated on the basis of proximity to the applicant's residence to the woodlot licence and the value of the private land, in terms of forest management, offered by the applicant for inclusion in the woodlot licence. If two or more applicants are similarly eligible under these conditions, then the eligible applicants will be asked to offer bonus bids, and the award will be made to the applicant with the highest bid. Like a TFL, the licensee must prepare a Management and Working Plan and a Five Year Development Plan. The licensee is responsible for basic silviculture and must harvest a specified AAC. Woodlot Licences have a term of 15 years and are normally replaceable for subsequent 15 year periods unless their original terms exclude such replacement.

3.4.6 Private Land

Private land that is classed as "forest land" by the British Columbia Assessment Authority, can be classed further as, "managed or unmanaged" forest land. To obtain the lower tax assessment, land may be classified as managed forest land. It must be managed in accordance with a Management Working Plan which includes an allowable cut and reforestation responsibilities, subject to the approval of the B.C. Assessment Authority. Unmanaged forest land is subject to no Forest Service control or requirements other than obtaining timber marks prior to moving logs off the property and certain minimal fire protection requirements. The issue of uncontrolled cutting of timber on these lands as timber values rise and the consequent impact on neighbours and the public is a looming problem. Certain jurisdictions elsewhere (Europe, some U.S. states) apply varying degrees of public control to such private lands. The common term for this regulatory action is a "forest practice code". No such legislation exists for privately owned forest land in B.C.

3.4.7 Taxation Tree Farms

On January 1, 1987 all Taxation Tree Farms outside TFLs were classified as managed forest land under Bill 7 - Assessment Amendment Act 1986. With the new classification, the owner is taxed on the timber only when it is



cut, but he must follow a Management and Working Plan approved by the B.C. Assessment Authority, to be assessed at the managed forest land rate.

Prior to 1987, a Taxation Tree Farm was a property tax classification for privately owned forest land which provided a fiscal incentive for the owner to practice sustained yield forestry under a management plan approved by the B.C. Assessment Authority. The owner was taxed on the value of the land and timber on it. He had to strictly adhere to the AAC on which the assessment was based. If the owner undercut he was still taxed on the AAC and if he overcut he was taxed on the overcut as well.

3.5 Revenue Generation from Forest Tenures

Perhaps the most important intent of forest tenure, at least historically, has been to provide the framework and mechanism for the Crown to recover its financial interest in the forest resource. On page 34, the three basic ways of direct revenue generation were discussed. Bonus bids offered and accepted, provide a one-time up-front cash payment at the time of award of a tenure right. Rental charges are fixed amounts payable annually and stumpage charges represent the Crown's interest in the timber. The Forest Service also collects revenue from scaling charges (\$3.9 million in 1987-88) and fees in lieu of manufacture in the province (\$26.7 million in 1987-88). This latter charge is applied to logs which are exported from the province and is levied in addition to the applicable stumpage charge. Bonus bids are not controlled by the Crown in any way. They vary from tenure to tenure, often there is no bonus offered at all, and where there is, it usually reflects a guess by the prospective tenure holder of how much must be offered in a closed tender to secure the licence. Virtually all revenue provided through bonus bid emanates from the Small Business Forest Enterprise Program, and this bonus is billed and collected as the stumpage fee. In the 1987 - 88 fiscal year the Forest Service issued billings for 7.2 million m³ under the Small Business Enterprise Program. The appraisal stumpage value was \$15.8 million. Bidders offered bonuses totalling \$44.4 million on top of the appraised value allowing the Forest Service to collect \$60.2 million as stumpage from the Program.

Ground rents represent the charge payable for the opportunity to use Crown Lands. They vary from tenure to tenure and are fixed from time to time by Regulation. The Annual Rent Regulation currently provides the following rates:

Timber Licence	\$ 1.25 per hectare
TSL (that specifies an AAC)	\$ 0.10 per m ³ of AAC
TSL (without an AAC)	\$ 1.25 per hectare



Forest Licence, Woodlot Licence and TSHL	\$ 0.25 per m ³ of AAC
Tree Farm Licence	\$ 0.45 per m ³ of AAC.

Only those TSLs covering an area greater than 25 hectares are required to pay rental charges

In 1987 - 88 the province earned \$19.1 million from ground rents made up approximately as follows:

Timber Licence	\$ 195,200	1.0 %
TSLs (major)	\$ 147,600	0.8 %
TSLs (minor)	\$ 97,600	0.5 %
Forest Licences, etc.	\$ 10,658,400	55.7 %
TFLs	\$ 8,049,200	42.0 %
Total	\$ 19,148,000	100.0 %

Stumpage charges provide the largest volume of direct revenue to the Provincial Government from its forest tenures. Because stumpage reflects wood quality, accessibility, logging costs and market conditions for the product the amounts collected can be quite variable from region to region and time to time. In 1987, the Forest Service introduced a new method for pricing timber, called the Comparative Value Pricing System. This system provides for revenue targets, set by government, to be distributed equitably among timber harvesters, taking into account production costs, the value of products produced and changing market conditions.

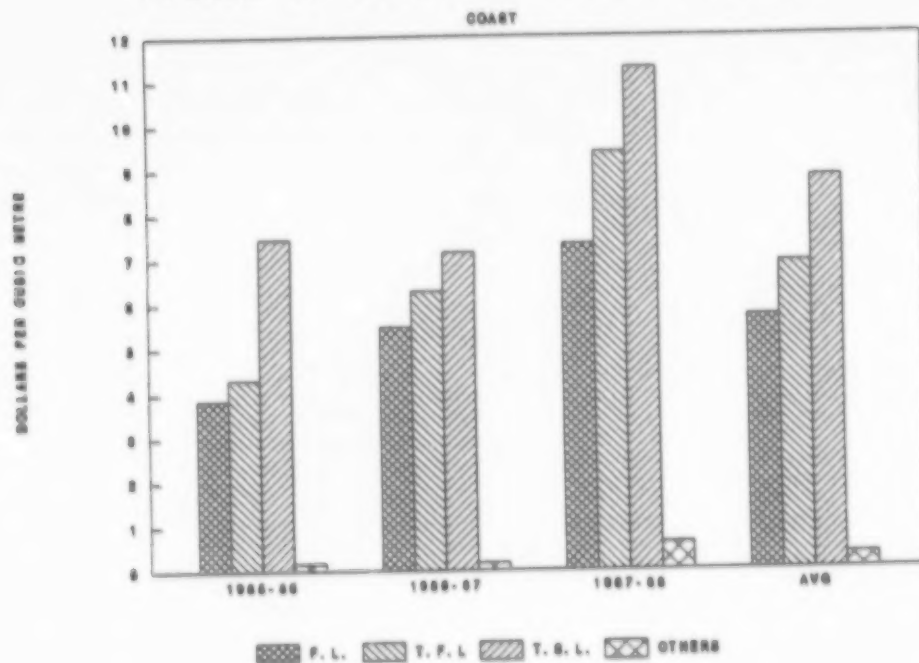
For the three fiscal years 1985 to 1987 the province received an average of \$223 million. 46 percent was derived from Forest Licences, 30% from TFLs, 22% from TSLs and 2% from other tenures.

Overall, TFLs contributed the highest stumpage per cubic metre harvested with an average of \$5.29 over the three years - compared with \$4.90 for TSLs and \$2.36 for FLs.

These figures are set out on the following three pages in graphical and tabular form. The differences in stumpage paid per cubic metre between the tenure forms is largely indicative of the operating costs and quality of the timber that may be expected to occur between the tenure forms. As a general rule, TSLs (particularly for Small Business) have lowest production costs because the Forest Service assumes most of the administrative costs. TFLs tend to have better quality timber than FLs. These rather general traits are reflected in the average stumpages.



FIGURE 3: STUMPAGE PAID BY TENURE



STUMPAGE CONTRIBUTIONS BY TENURE (THOUSAND \$) - COAST

YEAR	F.L.	T.F.L.	T.S.L.	OTHERS	TOTAL
1985-86	27,191	35,928	11,195	1,119	75,432
1986-87	44,293	44,775	13,526	1,189	103,783
1987-88	65,497	98,435	23,429	4,490	191,850
AVG	45,660	59,713	16,050	2,266	123,689

VOLUMES BILLED BY TENURE ('000m3) - COAST

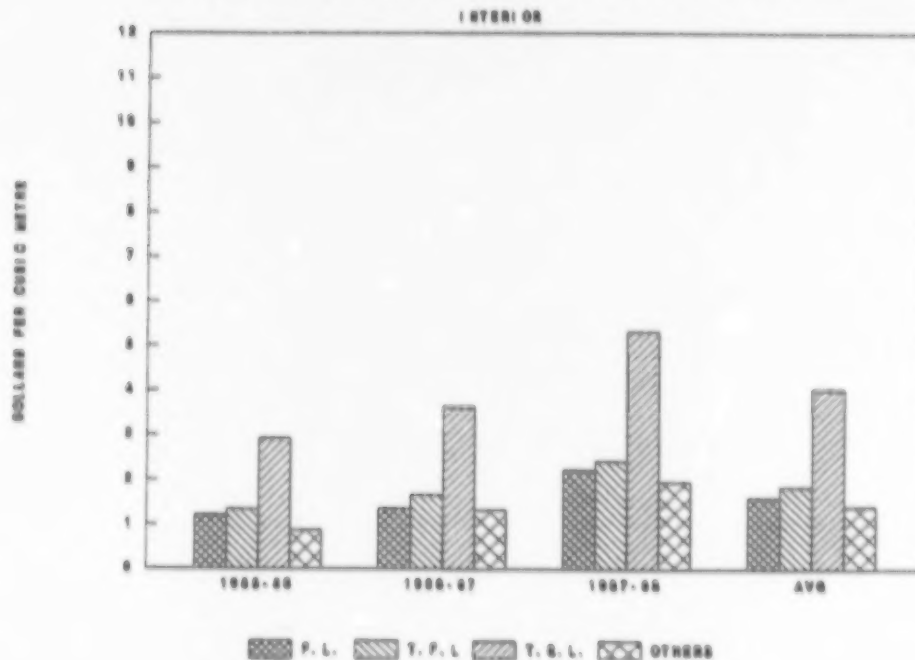
YEAR	F.L.	T.F.L.	T.S.L.	OTHERS	TOTAL
1985-86	7,070	8,346	1,502	6,725	25,628
1986-87	8,083	7,130	1,894	6,762	25,855
1987-88	8,937	10,498	2,079	7,456	30,967
AVG	8,030	8,658	1,825	6,981	27,480

STUMPAGE CONTRIBUTIONS BY TENURE (\$ PER M3) - COAST

YEAR	F.L.	T.F.L.	T.S.L.	OTHERS	TOTAL
1985-86	3.85	4.30	7.45	0.17	2.94
1986-87	5.48	6.28	7.14	0.18	4.01
1987-88	7.33	9.38	11.27	0.60	8.20
AVG	5.69	6.90	8.79	0.32	4.50



FIGURE 4: STUMPAGE PAID BY TENURE



STUMPAGE CONTRIBUTIONS BY TENURE (THOUSAND \$) - INTERIOR

YEAR	P.L.	T.P.L.	T.S.L.	OTHERS	TOTAL
1985-86	42,449	5,131	21,389	2,215	71,184
1986-87	47,418	6,327	29,614	3,061	86,420
1987-88	77,887	10,729	46,118	5,623	140,357
AVG	55,918	7,396	32,374	3,633	99,320

VOLUMES BILLED BY TENURE ('000m3) - INTERIOR

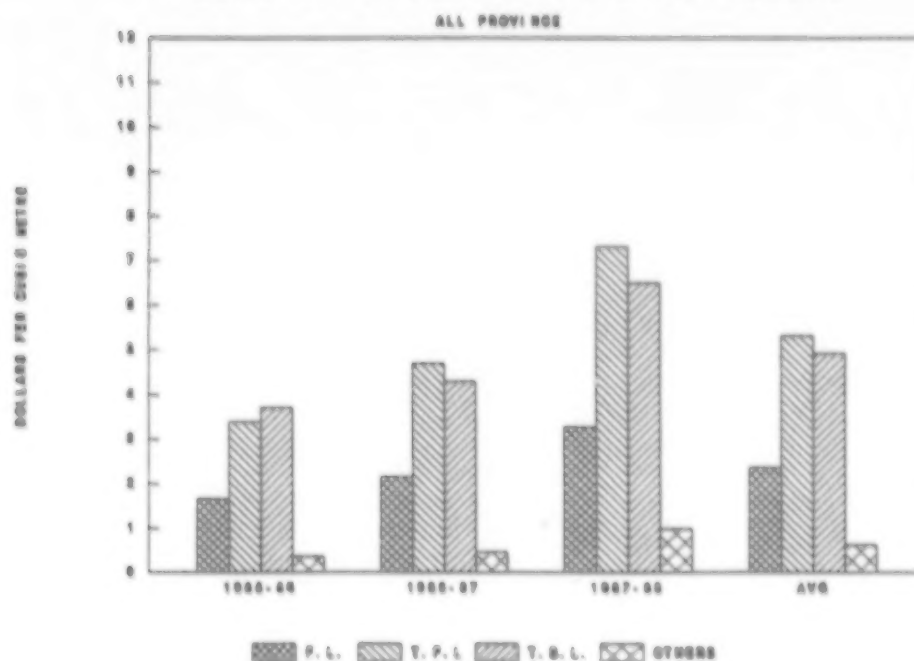
YEAR	P.L.	T.P.L.	T.S.L.	OTHERS	TOTAL
1985-86	35,001	3,830	7,338	2,533	48,702
1986-87	34,882	3,803	8,178	2,304	49,167
1987-88	35,086	4,446	8,641	2,865	51,038
AVG	34,990	4,026	8,052	2,567	49,636

STUMPAGE CONTRIBUTIONS BY TENURE (\$ PER M3) - INTERIOR

YEAR	P.L.	T.P.L.	T.S.L.	OTHERS	TOTAL
1985-86	1.21	1.34	2.91	0.87	1.46
1986-87	1.36	1.66	3.62	1.33	1.76
1987-88	2.22	2.41	5.34	1.96	2.75
AVG	1.60	1.84	4.02	1.42	2.00



FIGURE 5: STUMPAGE PAID BY TENURE



STUMPAGE CONTRIBUTIONS BY TENURE (THOUSAND \$) - PROVINCE

YEAR	P.L.	T.P.L.	T.S.L.	OTHERS	TOTAL
1985-86	69,639	41,059	32,584	3,334	146,616
1986-87	91,711	51,102	43,140	4,249	190,202
1987-88	143,384	109,164	69,548	10,112	332,208
AVG	101,578	67,108	48,424	5,899	223,009

VOLUMES BILLED BY TENURE ('000m3) - PROVINCE

YEAR	P.L.	T.P.L.	T.S.L.	OTHERS	TOTAL
1985-86	42,071	12,176	8,840	9,258	72,345
1986-87	42,965	10,933	10,072	9,066	73,036
1987-88	44,023	14,944	10,720	10,321	80,008
AVG	43,020	12,684	9,877	9,548	75,130

STUMPAGE CONTRIBUTIONS BY TENURE (\$ PER M3) - PROVINCE

YEAR	P.L.	T.P.L.	T.S.L.	OTHERS	TOTAL
1985-86	1.66	3.37	3.69	0.36	2.03
1986-87	2.13	4.67	4.28	0.47	2.60
1987-88	3.26	7.30	6.49	0.96	4.15
AVG	2.36	5.29	4.90	0.62	2.97





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***A HISTORY OF
FOREST TENURE POLICY***

***In British Columbia
1858 - 1978***

October 1989

SUMMARY

In British Columbia, major changes in forest policy have usually followed a Royal Commission. The first Commission was established in 1910. Chaired by F.J. Fulton, this Commission recommended policies to curb the speculative timber staking of the time. The Commission's advice against further long-term allocations was incorporated into forest policy for the next thirty years.

This system proved to be inadequate and in 1945 the second Royal Commission was established. Headed by G. Sloan, this Commission recommended the creation of management units. The "Private Working Circle" would grant individual enterprises long-term harvesting rights over forest areas in exchange for a commitment by these enterprises to practise sustained yield management on their holdings. Smaller operators were to have access to the Public Working Circles where public agencies performed the management duties.

These policy innovations were reviewed after a decade to determine their effectiveness; a task completed by the third Royal Commission which was also headed by G. Sloan. In its report of 1956, this Commission, with some minor exceptions, endorsed the implementation of the 1945 recommendations.

The fourth Royal Commission was established in 1975 and was chaired by Dr. Peter Pearse. Pearse identified several key issues which required policy revision. These included an improved framework for the administration of forest policy; a clarification of forest resource management goals; improved security of timber supplies through the tenure system; increased flexibility in the allocation of rights to public timber and the pursuit of deliberate policy outlining the pattern of future industrial development in the forest sector.

FORMS OF FOREST TENURE: HISTORY

INTRODUCTION

A review of the evolution of provincial forest tenure policy is essential to understand today's tenure system. Over the years the most influential trend in the evolution of tenure policy has been the increasing reluctance of subsequent governments to alienate title to forest land. Consequently, developing a method whereby public ownership can be maintained while granting timber rights to private interests has been the primary objective of the Provincial Government since the turn of the century.

In British Columbia, major changes in forest policy have usually followed the recommendations of a provincial Royal Commission. The four previous Royal Commissions were established to reflect changes in the forest industry.

The following summary attempts to provide a comprehensive review of the history of forest tenure in British Columbia. To summarize these events in such a limited space does not do justice to the complexity of the issues involved. However, as a starting point the following summary should prove useful.



HISTORY UP TO THE 1945 SLOAN COMMISSION:

CROWN GRANTS:

In the pioneer days of the Province, timber land was not regarded as having any great value. Forest land, like other classes of Crown land, was sold primarily for settlement. In 1858, the earliest disposal of Crown lands carried with it all the natural resources. This Crown Grant procedure was consistent with the traditions of freehold ownership inherited from England. In 1859, a proclamation was issued by the Governor of the colony reaffirmed this policy. It stated that "unless otherwise specifically announced at the time of the sale, the conveyance of the land shall include all trees...".

In 1887, timber land became recognized as being of value in itself. An attempt was made to forbid the sale of Crown lands "chiefly valuable for timber". However, due to statutory ambiguities and administrative laxity, grants continued to be readily available until 1896.

Between 1887 and 1888, grants of "Patented Lands" were made through a Special Timber Licence. This policy was supposed to reserve the actual timber for the Crown. In 1888 the policy was changed to include the timber with the grant. This new policy, however, reserved to the Crown a financial interest in the harvest in the form of a royalty.

In 1896 "timber land" was first defined and sale of this land was forbidden. This was notably the first effective step taken to establish the principle formulated in 1887 that timber lands should be held by the Crown. The act, however, was loosely enforced due to inadequate administrative measures. Thus, it was still possible for "timber lands" to pass into private ownership.

Although the export of timber cut under all forms of temporary alienation had been forbidden as early as 1901 (unless with the consent of the Lieutenant-Governor) there was no provision prohibiting the export of unmanufactured timber cut from these "patented lands" or other Crown lands disposed of until the passage of the March 12, 1906 "Timber Manufacture Act". This Act required that all timber cut from Crown lands granted after the passage of the Act must be used or manufactured within the Province.

Railway lands were a unique form of Crown grants. For a number of years these lands were held by the federal government. This was a result of large tracks of timberlands being granted in aid of railway construction to the Dominion under the Terms of Union. In 1930, following the recommendations of a Royal Commission, the Dominion returned to the Province most of the railway belt and the Peace River Valley block, subject to any alienations made during its ownership. However, a large amount of fine timber on Vancouver Island was granted to the Esquimalt and Nanaimo Railway Company which remained in private hands for a longer period of time.

Crown grants were undoubtedly the most secure form of forest tenure due to their permanency and the wide scope of the rights they conveyed. However, the opportunities to influence land use and for the public to maintain an interest in forest land were both narrow. While the Crown Grant was slowly being phased out, other forms of tenure, which maintained Crown ownership of the forest land base, were introduced.

OLD TEMPORARY TENURES:

The policy of granting rights to harvest timber without alienating the land, by means of Timber Leases was first introduced in 1865 in a Land Ordinance proclaimed in the Colony of Vancouver Island. By 1907, the provincial government had suspended allocations and reserved all the remaining unalienated timber. A refinement of the lease and three other forms of tenure evolved. A fifth was developed by the federal government during this time which eventually reverted to provincial control in 1930. These various forms of old temporary tenures are outlined below

1. TIMBER LEASES:

Leases were first granted under the Land Ordinance of 1865. They imposed no limits on size, rentals, royalties, or terms of lease. The only fixed principle was that the lands should be leased only to those "actually engaged" in the industry. This served the purpose of preventing speculation in timber by private interests. A new Ordinance passed in 1870 empowered the Governor to grant rights to timber through Timber Leases which would be subject to whatever charges, terms, and conditions that he might prescribe.

Provincial legislation enacted in 1888 created a new form of lease which required the lessee to pay a royalty and an annual rent per acre. He was also required to maintain a sawmill with at a specified capacity. In return, the lessee was able to cut all the timber on the specified lands for a term up to 30 years. The rights conveyed by these leases were much more limited than the rights granted in a fee simple interest. They were of limited duration and the lessee's interest in the land was restricted to the designated purpose -- cutting and removing timber.

In 1891, a system was introduced which sold leases by tender to the person paying the highest cash bonus. Amendments in 1892 reduced the lease term to a maximum of 21 years and that the required mill be appurtenant to the lease. By 1895 non-mill owners could acquire leases with the payment of an increased rental rate. In 1899, amendments were passed which made ownership of a mill insufficient, a mill now had to be operated 6 months each year unless excused by the Lieutenant Governor due to extenuating circumstances.

In 1901 holders of all leases issued under previous procedures were given the right to exchange their tenures for new 21-year leases which would be renewable for successive terms of 21 years. This Act also required that all timber cut from timber leases or timber licences must be used or manufactured within the Province. Export was later allowed on certain terms. Provision was made in 1915 for the conversion of leases into special timber licences.

2. PULP LEASES:

Pulp leases were first granted in 1901 as a form of timber lease granted to owners of pulp-mills with one tonne of pulp per square mile of lease capacity. One provision being that the mill was to be operated six months in the year. Since the timber involved in pulp leases was usually of less value the rental and royalty were payable at lower rates. A provision was made, however, for higher rental and royalty rates regarding sawlogs cut on a pulpwood lease which were not manufactured into pulp and paper.

As a result, less revenue was collected on first and second grade logs manufactured into wood-pulp or paper than those cut into lumber. Exportation of manufactured timber from this form of lease was not allowed under the 1901 Act. These leases were no longer granted after 1905 but rights of renewal have been maintained from time to time by statute amendments. The conversion of these Pulp leases into Special Timber Licences occurred in 1926 and 1927 when the timber was found to be unsuitable for the manufacture of pulp and paper.

3. TIMBER LICENCES:

This is a form of temporary alienation of timber and is of later development than leases as it was not established until 1884. The 1884 "Timber Act's" main purpose was to derive revenue from the cutting of timber from Crown Lands. Unoccupied Crown lands, other than Indian Reserves or lands exempted by the Lieutenant-Governor were available for licence.

Timber dues were imposed but prior to April 7, 1887 no royalty was reserved on timber cut from lands sold by the Crown. No Act set any specific rate of royalty in respect of timber cut from leased lands. The licence system, was therefore, more profitable to the Crown than any other form of temporary or permanent alienation then in effect. Leases were generally only granted to mill-owners. Such a limitation was never imposed on timber licences. Licences became "Special Timber Licences" in 1898 and were given for one year, being renewable at the discretion of the chief Commissioner of lands, but were not transferable. The annual fee and royalties were increased.

Until 1903 the system of temporary alienation was conducted with the dual purpose of obtaining revenue and granting timber to operators. Provisions relating to granting timber licences were then liberalized with the purpose of assuring operators a future source of supply. This led to a period of great activity and speculation in timber licences. Consequently the revenues of the Forest Branch soared. The 1903 Act lengthened the term of licences to 5 years renewable.

The "Timber Manufacture Act" was passed, incorporating the 1901 provisions relative to the manufacture within the Province of timber cut from leases and licences, and enacted that timber cut from all Crown grants issued after March 12, 1906 should likewise be used or manufactured within the Province.

Licences issued after 1908 carried one year renewable terms, to a maximum of 21 years. The new legislation stipulated that the old licences already in force would be annually renewable for 16 years and that all licences would be freely transferable. This latter feature made the Timber Licence very popular and by 1907 it had become the most widespread form of harvesting rights. In 1910 licences could be converted into licences renewable from year to year so long as there was timber of commercial quantities on the licensed area. This made licences an equally secure form of timber tenure as leases. Time for conversion was eventually extended to 1929.

As of February 1944, licensed lands were subject to the annual forest protection tax, and the timber cut was subject to royalty as provided by the "Forest Act". Also, timber licences were renewable from year to year with an annual renewal fee. These annual renewal fees were fixed until December 31, 1954 by the "Timber Royalty Act" of 1914. This was later incorporated into the "Forest Act". As of 1974, the Timber Licence was still the most important form of old temporary tenure.

4. PULP-WOOD LICENCES:

Pulp-Wood Licences began as Timber Licences. Between 1919 and 1921 they were converted under special provisions which gave licensees, who wanted to remove pulp timber, the same advantages in terms of royalty and renewal fees that Pulp Leases offered over Timber Leases.

SPECIAL FORMS OF LICENCES:

In addition to these general timber licences there were two special forms of licences: "hand-loggers' licences" and "hemlock-bark licences". Hand-loggers' Licences were personal licences allowing the holder to cut timber. These were first granted in 1886. In 1888 the term for which such licence could be issued was limited to one year.

In 1908 the fee was raised and the area of operations was confined to certain parts of the Northern Coast. The 1908 Act also forbade use of steam powered machinery by the holder of a hand-logger's licence. In 1920, use of any powered machinery was banned for these loggers. Timber cut from this form of licence was subject to royalty. Hemlock-bark Licences were really a form of lease. All of these have either lapsed or been converted to special timber licences.

THE FULTON REPORT — 1910:

From about 1904 on, a variety of circumstances converged to produce a frenzy of "timber staking" in the province. The number of Timber Licences rose from less than 15 hundred to more than 15 thousand in 3 years. The government welcomed the rental revenues that this increase produced, but was worried about the possibility that all Crown Timber in the province would become committed.

In 1907, by an Order-in-Council, further issuances of cutting rights were suspended and all unallocated timberland was placed under reserve. Before taking anymore steps, the Government sought an assessment of its policy by appointing the first provincial Royal Commission of Inquiry into Forest Resources. This Commission's report was released in 1910. The Commissioners estimated that roughly three-quarters of the province's merchantable timber had been alienated in one form or another. The Commission was convinced that the forest industry's supply of timber was more than adequate for the foreseeable future. It, therefore, endorsed the government's decision to reserve the remaining unalienated timber from disposition.

The recommendations of the Fulton Report were well received and many were incorporated in the "Forest Act" of 1912. This legislation created the Forest Service as a specialized agency within the Department of Lands. The Fulton Report was also directly responsible for the development of Timber Sale Licences.

TIMBER SALE LICENCES:

The "Forest Act" of 1912 required that an area proposed for sale be "cruised and classified" before a Timber Sale Licence was issued. Sales were preceded by advertisements and tenders were called. The successful applicant was obliged to pay the standard rental, royalty and the appraised upset price determined by the Forest Service.

The Timber Sale Licence system was important as, at the time, it was the only means available for disposing of new rights to Crown timber (other than the Hand Logger's Licences). Until Sustained Yield policies were introduced in 1948, the Forest Service processed Timber Sale Licences without restriction.

FOREST RESERVES:

Forest Reserves were another important provision of the 1912 legislation. Once Crown land was designated a Forest Reserve by an Order-in-Council, it could not be alienated for any non-forestry purpose unless taken out of reserve by Cabinet.

PULPWOOD TENURES:

Pulpwood Timber Sale Licences are a modification of the Timber Sale Licence authorized under the 1912 Forest Act. These were designed to attract and encourage investments in pulp and paper manufacture and to facilitate the use of timber best suited for pulping in existing or proposed mills.

THE 1945 COMMISSION:

By 1943 apprehensions had arisen over the unbalanced pattern of timber harvesting and over inadequate provisions for future forest crops. Timber Sale Licences were growing in importance but they were mainly clustered around the more developed areas.

There was only scant protection offered by Forest Reserves and little assurance of continuous forest production. The forest industry did not like the short-term Timber Sale Licence system as it did not provide adequate assurance of long-term raw material supply necessary for investment in new utilization plants. These concerns led to the appointment of the second Royal Commission of Inquiry in 1943.

The Commissioner, the Honourable G. McG. Sloan dealt mainly with the design of a sustained yield forest policy for the province in his 1945 report. He concluded that the public interest required a sustained yield policy to gain maximum advantage from the province's forest resources. This would also provide stability to the industry. Forest land, the Sloan Report proposed, should be managed to produce timber in perpetuity.

WORKING CIRCLES:

Two types of sustained yield management units were proposed to cope with this task. These Sloan referred to as "Private Working Circles" and "Public Working Circles". "Private Working Circles" involved a new licensing arrangement which would enable owners of Crown-granted land and old temporary tenures to combine their holdings with additional Crown land to form coherent management units which would be managed according to a sustained yield plan. By delegating to the licensee direct responsibility for managing these units, the private resources of the industry would work towards the sustained yield goal and the Forest Service would still be able to provide public safeguards through their supervisory role.

"Working Circles" as a sustained-yield program of forest management had several objectives. "Working Circles" were to provide for multiple forest uses; the perpetuation of the forest resource for the support of industry with the consequent development and the stability of regional communities dependent upon permanent payrolls.

Private working-circles, in particular, were to be those areas from which the privately owned and Crown owned timber would be utilized to supply the needs of one or more particular conversion units, whereas, Public working-circles were to fall into several classifications. The first would be areas from which Crown timber would be sold in accordance with sustained-yield principles and the production from which would be allocated to the open log market or to small millers with little or no timber of their own but whose manufacturing plants were of economic benefit to the inhabitants of local communities. Another form of public working-circle might result from the merger of the holdings of private owners with no conversion plants of their own but who desire to practise sustained-yield forestry.

Crown forest lands not incorporated under these licensing arrangements would be divided into "Public Working Circles" and each would be directly managed by the Forest Service as a sustained yield unit.

Under the 1944 system of temporary alienations of timber lands that revert to the Crown when logged there was no motivation for operators who cut these lands to treat these lands as permanent tree-farms producing continuous crops. They were forced instead to move from one area to another to maintain production "cutting out and getting out".

Responsible operators with large investments in sawmills and pulp and paper plants realized that this process could not be kept up indefinitely. The first step, Sloan concluded, was the development of a form of tenure which permitted the operator to retain possession in perpetuity of the land now held under temporary forms of alienation, on the condition that the productiveness of these lands be maintained continuously and that the cut is regulated on a sustained-yield basis.

Sloan upheld that it was undoubtedly in the public interest to maintain our forests on a sustained-yield basis to secure permanency of our forest industries.

Forest industries would only be stabilized if there was a continuity of supply of raw material for those industries. There can be a continuity of supply only if, on the second rotation, the cut does not exceed increment, and the cut must be sufficiently large to ensure production at a rate adequate to maintain a profitable operation. Privately owned timber reserves would be inadequate to maintain this program. Therefore Crown timber would be utilized for this purpose.

The allocation or reserve of Crown timber for units of industry would serve two purposes: First, it would enable the operator to maintain production from the cut of mature Crown timber during the period necessary to restock his own land; Secondly, the combined area of the private and Crown acreage should, on the second rotation, produce enough timber on a sustained-yield basis to maintain production of the unit in perpetuity, albeit perhaps not at the peak of capacity, but sufficient enough to ensure a profitable operation.

The reserve of Crown timber located near privately held lands would mean that the owner of the private timber lands could acquire the Crown tracts when needed. His logging methods would be subject to regulation and on the second rotation he would be limited in his cut to the sustained-yield production of the combined areas.

If insufficient areas were available to maintain economic production from this conversion unit on the second rotation on the basis outlined, he would be free to augment his supply of raw material from the open log market or from other private owners of timber who would be willing to merge their resources with his on a planned management basis during the mature cut.

Amendments to the Forest Act of 1947 incorporated many of the proposals of the 1946 Commission. The Minister had the authority to grant Forest Management Licences which embodied the "Private Working Circle" proposal. The name was later changed to "Tree-Farm Licence". "Public Working Circles" were eventually renamed "Public Sustained Yield Units".

The 1945 Report also recommended that another Commission of Inquiry be struck ten years later and in 1955 this advice was followed. The 1955 review was conducted once again by the Hon. G.McG. Sloan. The purpose of the 1956 report was to assess the governments progress with sustained yield policy.

SUSTAINED YIELD POLICIES AFTER 1945:

TREE-FARM LICENCES:

Originally called the "Private Working Circle", the Tree-farm Licence was appealing as an instrument of the new sustained yield policy. Without relinquishing title or complete control over public lands, the government was able to bring under management private lands, old temporary tenures, and other Crown land, while assuring industrialists of the long-term timber supplies they required for investment in utilization facilities. Shortly after the new legislation was passed, the government began to receive scores of application for this new form of tenure.

The Minister had unqualified discretion to decide how many licences were to be issued, what size and who they would be awarded to. This often generated criticism from unsuccessful applicants and the independent logging industry.

As of 1974 there were 34 tree-farm licences. The rights and obligations of the licensees were defined in part in the contract document and partly in the Forest Act and Regulations. Many provisions are common to all licences while others vary depending on the special characteristics of different licence areas or differences in policy when the licences were issued or renewed. Although only a general discussion of T.F.L.'s shall be pursued here, most Tree-farm licences contained unique provisions.

1. COMPOSITION OF TFL's:

Tree-farm licences include lands of varying status, but all the lands in each licence are managed as an integrated sustained yield unit, under a single plan. The Crown-granted lands and old temporary tenures contributed by the licensee are designated as "Schedule A" lands in the licence document, while the additional Crown lands included are described as "Schedule B" lands.

2. MANAGEMENT OBLIGATIONS:

The forest management responsibilities of licensees are heavier under Tree-farm Licences than under any other form of tenure. To ensure proper management and harvesting according to sustained yield principles the licensee is required to submit management working plans for successive 5-year periods. These plans cover operations on all tenures within the licence, and include reforestation programs, inventory data, allowable cut calculations, and general development priorities for the areas covered. They must be prepared by a Registered Professional Forester and approved by the Forest Service, and they govern all harvesting activities.

To harvest timber from any land in the licence area, including old temporary tenures and Crown grants, the licensee is obliged to obtain Cutting Permits from the Forest Service, authorizing short-term operations on prescribed tracts under detailed terms and conditions. Cutting Permits also contain directives concerning utilization standards, slash disposal, environmental protection, etc.

3. CONTRACTOR HARVESTING:

Was first introduced in 1953 to meet the growing anxiety of small logging operators as more timber became allocated under Tree-farm Licences. It commits the licensee to provide the opportunity to independent contractors to log a specific percentage of the harvest from "Schedule B" lands.

PUBLIC SUSTAINED YIELD UNITS:

Originally the Public Sustained Yield Units were to differ from TFL's in two main considerations. First, the Forest Service was to be directly responsible for planning, reforestation and protection on these lands. Secondly, cutting rights in these units were to be allocated by competitive bidding. Public Sustained Yield Units were to provide a source of timber for those who could pay the market price. The first of these units was designated in the early 1950's and within a decade much of the province's major available timber producing regions had been delineated into what became known as "Public Sustained Yield Units".

The allocation of timber rights in Public Sustained Yield Units were modified forms of the standard Timber Sale Licence. The Minister had wide statutory latitude in prescribing the terms and conditions of these licences, and they had already proven to be highly versatile, having assumed a variety of special forms such as Pulpwood Timber Sale Licences and licences for other special products.

The new Timber Sale Licence arrangements introduced with the establishment of Public Sustained Yield Units were directed toward two objectives. The restriction of the rate at which new licences were issued and the regulation of the rate of harvesting under individual licences. These changes enabled the government to reconcile harvesting with the calculated sustainable yield in each unit.

OTHER SUSTAINED YIELD UNITS:

Besides the Tree-Farm Licences and Public Sustained Yield Units, two other types of sustained yield units evolved after the 1946 Royal Commission report. Farm Wood-lot Licences were designed to serve the special needs of farmers, and Taxation Tree Farms offered owners of Crown-granted forest land tax incentives to practise sustained yield forestry.

Farm Wood-lot Licences resulted from an amendment to the Forest Act passed in 1948 which authorized the Minister to grant to bona fide farmers the timber rights over small areas of Crown forest land. Actual production from these units is negligible in the provincial context.

A 1951 amendment to the Taxation Act created Taxation Tree Farms. This amendment provided tax relief for owners of Crown-granted land who agreed to practise sustained yield forestry according to plans approved by the Forest Service.

THE 1956 COMMISSION:

Sloan, in his 1956 Report, felt that he was standing at a momentous period in the economic and social development of this industry. It was a time of transition from a discarded policy of forest liquidation to one of sustained yield and forest management. Consequently, his main objective was to evaluate and resolve the conflicts existing between those of the long and the short view of our future policies -- a task of great complexity.

Sloan concluded that the utilization of a desirable degree of administrative flexibility, if properly exercised in future years, could, in itself, avert or minimize any unforeseen and detrimental consequences that might arise from the projection of our present concepts into the unknown years ahead.

Forest policies as they relate to stumpage rates, taxation in its different forms on forest land and forest products, tenures and the assured supply of raw material at realistic cost levels, regeneration and other related matters must all be guided by an informed and sympathetic understanding of the vulnerability of our forest industry to foreign markets. In these matters government policy will of necessity play a major and decisive part.

The third Commission report, released in 1956 reviewed the government's progress over the intervening decade and made a number of suggestions for improvement. These recommendations were aimed chiefly at tightening administrative arrangements and, with a few exceptions, did not herald major shifts in policy.

EVENTS SINCE THE 1956 ROYAL COMMISSION:

By the mid-1960's the sustained yield program proposed by the second Royal Commission had taken firm root in the form of Tree-farm Licences and Public Sustained Yield Units, and to a lesser degree as Farm Wood-lots and Taxation Tree Farms.

The dramatic industrial developments since the early 1960's led the government to introduce new policy innovations, but without the advice of Royal Commissions. Most significant have been new arrangements to accommodate the pulp industry in the Interior, certain adjustments to the old temporary tenures and the recommendations of the Task Force on Crown Timber Disposal.

PULPWOOD HARVESTING AREA AGREEMENTS:

Until the early 1960's, pulp manufacturing was confined to the Coast. In 1955 a Tree-farm Licence was issued in the south-eastern part of the province to supply the first Interior venture -- an integrated pulp and lumber complex at Caslegar -- which began production in 1961. Pulpwood Harvesting Area Agreements were conceived to make available to new pulp ventures the small and decadent timber that was then considered unsuitable for sawmilling. This would leave the sawtimber "quota" allocations intact, superimposing a complementary pulp industry over the established sawmilling sector.

An amendment to the Forest Act in 1961 gave the Minister authority to designate any Interior Public Sustained Yield Units as Pulpwood Harvesting Areas. All of the agreements in force in 1976 carried a maximum 21-year term authorized by statute, renewable upon expiry. The main feature of these agreements was the option they conferred to harvest pulpwood in the designated area. Their holders were under no obligation to harvest timber but they could call on the government to issue Timber Sale Licences authorizing cutting.

CLOSE UTILIZATION LICENCES:

The "close utilization" standard involved removal of smaller trees, more of the stumps and tops and more defective pieces. New technology enabled the utilization of this material and the government offered incentives to lumber producers to install the needed facilities. When timber inventories and allowable harvests were recalculated to the "close utilization" standard they were inevitably larger. Therefore, the revised annual rate of cutting that could be maintained according to the Forest Service's sustained yield criteria was considerably higher than that committed under "quotas".

REVISIONS IN TREE-FARM LICENCES:

Holders of Tree-farm Licences also made the shift from intermediate to close utilization standards, substantially increasing the annual cutting rates approved under management working plans. In Tree-farm Licences, the licensee is entitled to the entire approved sustained yield harvest in the licence area, so there was no need for policy to allocate the additional cut among competing users as was done in Public Sustained Yield Units. Each licensee automatically inherited all of the additional harvest indicated when "close utilization" recovery standards were adopted for the unit. This contributed substantially to the increases in approved annual cutting rates for Tree-farm Licences.

TIMBER SALE HARVESTING LICENCES:

Timber Sale Harvesting Licences emerged as a modification of the traditional Timber Sale Licence in 1967. The Timber Sale Harvesting Licence eliminated the awkward task of reconciling volume allocations with the inventory of licenced area. Between 1965 and 1969 four licences in the northern interior were issued to confer harvesting rights for 18, 19 and 21 years. In 1973 another special form of Timber Sale Harvesting Licence, carrying a 12 year term was introduced to allocate timber in Public Sustained Yield Units in the northern part of the province. The "third band" Timber Sale Licence was introduced in 1969 as a reward, in the form of additional cutting rights, for firms which adopted new technology and moved to the practise of close utilization standards.

MILL LICENCES:

Another forest management instrument was introduced in our province in 1969. Regulations passed under a Forest Act amendment empowered the Minister to require anyone wishing to construct or expand a wood utilization plant to first obtain a Mill Licence. Mill Licences are not forms of tenure over Crown timber. They only give permission to construct and operate manufacturing facilities.

OLD TEMPORARY TENURES:

Since 1907 when a moratorium was placed on them, no new old temporary tenures (Timber and Pulp Leases and Licences) have been issued by the province. From that date, the acreage covered by these tenures and their relative importance has gradually diminished, as licensees have liquidated the original timber or otherwise allowed them to revert to the Crown.

THE 1976 ROYAL COMMISSION:

The recommendations of the Sloan Commission of 1945, and its subsequent endorsement by the 1956 commission, had far reaching impacts on the forest industry. Within a short period of time a majority of the forest resources of the province were brought under the sustained yield management, either through private or public means in accordance with the recommendations of the two Sloan Commissions. By 1976, however, it was felt that the effects of these profound changes in forest policy needed to be reviewed once again in light of the increasingly complex nature of the forest tenure system in the province.

Political changes, coupled with mounting pressures on the available timber supply and increasing demands for environmental protection of the resource were cited as key factors in the determination that the present forest tenure policy was in need of reform. Thus, a fourth Royal Commission was struck, under the guidance of the Dr. Peter H. Pearse, to reevaluate and assess existing policies. The Commission was directed to examine the current state of timber allocation in the province, in order to formulate coherent recommendations that identified weaknesses and set priorities for reform.

At the outset of his Report, the Commissioner identified two objectives which guided his subsequent recommendations for tenure policy. First, Pearse concluded that the public interest was best served by continued public ownership of unalienated forest lands, but conceded that established private property rights effectively limited the scope of any possible policy reform, and that any abrogation of such rights was to be avoided. Second, new policies needed to acknowledge the existing economic and social structure of the industry, implying that publicly mandated restructuring was not practical.

Given these constraints, Pearse identified several key areas for policy revision, namely: the administration of forest policy; the pursuit of a deliberate policies outlining the pattern of future industry development in the forest sector; and a clarification of resource management goals with reference to the security of timber supplies and governmental flexibility in the allocation of rights to publicly owned timber.

ADMINISTRATION OF FOREST POLICY:

Recommendations were also made in the 1976 Report to improve the framework of public administration for implementing forest policy. Changes were requested in the formal instruments of policy (i.e. legislation, regulations, and contracts); reforms in the organization of the administrative agencies and their financing; and new approaches to planning forest operations and reformed administrative procedures for regulating them.

The most obvious priority was the overhaul of the Forest Act of 1912 which was updated through a patchwork of amendments. Pearse also recommended that there be a consolidation of the Fish and Wildlife Branch and the Forest Service into a new Department of Forest and Wildlife Resources. Proper provisions were to be made for silviculture, other forest uses and environmental values.

RESOURCE MANAGEMENT GOALS:

Dr. Pearse reaffirmed the Province's commitment to sustained yield management, but found several shortcomings with current practices. The Commissioner found serious inaccuracies in the determination of accurate timber inventory data necessary for the calculation of sustainable yields and, thus, also the calculation of annual allowable cuts. Moreover, it was found that operators were penalized, irrespective of possible market fluctuations, if harvest rates did not approximate the allowable cut on a five year basis. To remedy these problems, Pearse called on the Forest Service to develop more reliable estimates of recoverable timber and recommended that harvest rates be made more responsive to technological trends and economic realities.

1. UTILIZATION POLICIES:

Problems were also encountered in the area of utilization policy. It was found that rigid utilization standards were being imposed without consideration to the silvicultural, environmental and economic needs of a region. In addition to stumpage incentives for operators in areas where the recovery of marginal and sub-marginal timber was required, a system of variable utilization standards, dictated by local forest conditions, the circumstances of logging, and silvicultural practices, was, therefore, recommended by the Commissioner.

2. REGIONAL AND LOCAL MANAGEMENT PLANS:

Furthermore, it was realized that there were difficulties at the regional level with regards to resource use. Dr. Pearse called for the participation of public agencies and resource users besides the Forest Service, in the creation of regional management plans so that potential conflicts could be resolved prior to harvesting.

Finally, the Commissioner noted that resource management was generally of higher quality in the Tree Forest Licences than in any other management units, particularly the Public Sustained Yield Units, and that such localized planning should be brought up to the standard of practice found in the TFLs.

SECURITY AND ALLOCATION OF TIMBER SUPPLIES:

The Royal Commission of 1976 made some of its most important recommendations with regard to the security of raw material supply. Citing a perceived threat to timber supplies by forest companies due to ambiguities and inconsistencies in the tenure system, Pearse put forth extensive recommendations for the clarification of rights and obligations under all the major forms of licensing.

1. FOREST LICENCES:

In Public Sustained Yield Units, a new form of renewable harvesting right termed the "Forest Licence" was recommended to replace the Timber Sale Harvesting Licences and the "quota" Timber Licences. Such licences would have terms of 10 years or 15 years where needed to support a new enterprise. Sale would occur by competitive bid, and at the time of renewal. The licensee would have the right to initiate a new Forest Licence with a matching bid privilege allowing a cut of at least 80 percent of that authorized by the expiring licence.

Timber Sale Licences were to be revised in order to be more flexible and less onerous to the licensee who was usually a smaller, unintegrated operator. Such licences were intended to convey rights to timber supplies outside the current "quota" system -- principally the "third band" timber sales introduced in 1969.

The scope of the licensee's responsibilities would be narrower than for Forest Licences, and a variety of sizes and terms ranging from 3 to 10 years were recommended. All Timber Sale Licences were to be sold by competitive bid, and were to carry no contractual renewal privileges in order to avoid the emergence of another "quota" system.

Finally, it was suggested that all licences be identified with a designated geographical area in addition to specifying an annual allowable cut. The licensee's forest management responsibilities would extend over the entire area during the term of the licence.

2. TREE-FARM LICENCES:

Pearse concluded that Tree-farm Licences were responsible for providing a rapid improvement of resource management. The Commissioner sought to preserve the great advantages this system offered, such as the defined geographical area over which the licensee had rights and responsibilities; the long terms of these tenures; and the strong incentives given to licensees to increase the productivity of the land. However, the somewhat ambiguous perpetual terms remaining in some licences needed to be revised to finite terms so that the Crown could retain more flexibility in the determination and allocation of forest land in the future.

As a result, Pearse recommended that all future Tree Forest Licences were to be renewed for a term of fifteen years. This "evergreen" renewal also provided the licensee with the option for an additional five year renewal at the end of each five year period (ie.

upon expiry of a 5 year management working plan). As well it was advised that the Forest Act be amended so that the terms of all previously granted TFL's, with perpetual terms, be fixed at 21 years from the date the legislation was passed, with a subsequent option for the 15 year "evergreen" renewal.

Thus, TFL's which had already been granted in perpetuity would expire after twenty-one years and then be subject to the new TFL terms. Moreover, new TFL's would now only be granted if the licence contributed a matching annual allowable cut through private lands and Old Temporary Tenures and if the new licence did not increase the concentration of harvesting rights amongst forest operators. It was assumed that the terms for each of these "evergreen" licences would be discharged to satisfaction of the Forest Service. Thus, the licence could be renewed in perpetuity, thereby, ensuring an adequate timber supply while providing the incentive for sustainable management by the usually large scale licensee.

3. REVISED TIMBER LICENCES:

Pearse recommended that all forms of the Old Temporary Tenures (Timber Licences and Leases, Pulp Licences and Leases, and Timber Berths) be consolidated under a revised "Timber Licence" category which would ensure an orderly harvesting and liquidation of these tenures, some of which dated from the nineteenth century.

Timber Licences within TFL's would be issued terms coinciding with the latter, and licensees were assured the right to harvest these tenures in accordance with the management plans for the TFL's.

For tenures outside existing TFL's new terms would be set, to a maximum of 20 years, to ensure efficient harvesting of timber before the tenure reverted expired. All such non-incorporated tenures were to be considered as a part of the Public Sustained Yield Unit in which they were situated.

4. PULPWOOD AGREEMENTS:

In order to resolve perceived difficulties and uncertainties regarding pulpwood agreements, the Commissioner recommended that the provision for the acquisition of Crown timber by pulp companies to offset deficiencies in residual chip supplies be retained and clarified in renegotiated agreements extending for 21 years. A large number of Timber Sale Licences would be maintained within reach of the mills to fulfill these needs.

ALLOCATION OF TIMBER RIGHTS:

Public ownership of forest land has the advantage that the government can shape the pattern of industrial development to best serve economic and social objectives through its resource policies. A more

complicated issue is the government's role in shaping the structural pattern of industrial development.

Pearse concludes in the 1976 Report that the best industrial structure is one which includes a wide range of entrepreneurial forms with competition and opportunities for new participants at all levels. Consequently, he voiced concern over the rapid concentration of timber rights in the hands of a few, large corporations. This problem warranted the recommendation for a measure of balance between firms of different size and operations of differing structure. For example, new TFL's were not to encroach on Public Sustained Yield Units which were well suited to the operation of small enterprises under short-term tenure.

Finally, Pearse also provided a variety of other recommendations which would promote diversity, flexibility, and balance in the industry. These included relaxation of appurtenant mill requirements in licence contracts, abandonment of procedures that link timber rights to licensees' mill capacities, and adoption of clearer and more flexible rules for transferring rights.

THE FOREST ACT OF 1978:

The Forest Act of 1978 in large measure enacted the recommendations put forth by the 1976 Royal Commission with some minor administrative revisions.

CONCLUSION:

As this report demonstrates, forest tenure policy in British Columbia is extremely complex. An understanding of the evolution of forest tenure policies should, however, provide insight into the policies which exist today. Unfortunately, due to the limited scope of this summary only a general survey of past policies has been presented. The reader is urged to consult specific Royal Commissions or Forestry Acts if greater detail regarding particular topics is required.